JPRS 77559

11 March 1981

USSR Report

ENERGY

No. 51

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ELECTRIC POWER

MINISTER DESCRIBES POWER INDUSTRY ACHIEVEMENTS

Moscow PRAVDA in Russian 22 Dec 80 p 1

/Interview with USSR Minister of Power and Electrification P. S. Neporozhniy, by PRAVDA correspondent S. Bogatko: "Electric Rivers Are Flowing"/

> /Text/ Today is the Day of the Power Worker. This year this occupational holiday of the Soviet power workers is being celebrated at the same time as a glorious anniversary: 60 years ago, on 22 December 1920, while delivering at the Eighth All-Russian Congress of Soviets a report on foreign and domestic policy, V. I. Lenin advanced the program of electrification of the country. It went down in history as the plan of the State Commission for the Electrification of Russia.
>
> In connection with the traditional holiday PRAVDA correspondent S. Bogatko asked USSR Minister of Power and Electrification P. S. Neporozhniy to tell with what results this key sector of the national economy is entering the 11th Five-Year Plan and what its new gains are.

Lenin's formula "Communism is Soviet power plus electrification of the entire country," which expresses figuratively and concisely the general direction of the building of communism, even today is a reliable compass for our party and the Soviet people in economic activity.

At the close of the 10th Five-Year Plan tens of thermal electric, hydroelectric and nuclear electric power stations with a capacity of more than 1 million kW each are in operation in the country, of them eight have a capacity of 3 million kW and more. The Unified Power System of the USSR, the largest in the world, which unites 220 million kW of capacities, has been created and is being developed. It is connected with the power systems of member countries of the Council for Mutual Economic Assistance.

USSR electric power engineering is at the level of world achievements both with respect to the unit capacity of the projects being built and with respect to their degree of economy. The specific consumption of conventional fuel per released kWh is now 328 g—this is one of the best indicators of world practice.

The annual plans of the generation of electric power and thermal energy throughout the five-year plan were fulfilled and exceeded, in spite of the delay in the placement of capacities into operation and the difficulties in fuel supply. However, the power system is operating with the minimum reserves.

Today hundreds of thousands of skilled workers and specialists are working in electric power engineering. Among the best are the brigade of repairmen of V. Romazanov of the Moscow Regional Administration of Power System Management, the brigade of machine operators of U. Naurbiyev from the Kamgesenergostroy Association, the brigade of electricians of K. Dorogov, which during the five-year plan installed 52 transformers at the largest electric power stations of Siberia and the Far East, senior machine operator N. Khudov of the Kostromskaya GRES and many others.

The collectives of 4,500 electric power stations, plants, construction projects, institutes and other organizations and 47,000 combined and specialized brigades are participating in the competition for a worthy greeting of the 26th CPSU Congress. The "workers' relay race" has become widespread.

Enormous tasks face the power workers during the 11th Five-Year Plan. In 1985 the generation of electric power has to be increased to 1.55-1.6 trillion kWh.

At the November (1979) CPSU Central Committee Plenum Comrade L. I. Brezhnev said: "...Our duty is to think in advance about the power engineering of the future, on which the economic growth of the country depends in many ways." The need to develop renewable sources of energy and to devote particular attention to the improvement of nuclear power engineering—fast reactors, controlled thermonuclear fusion--was also outlined. The work in the area of magnetohydrodynamic generators, which increase the yield of organic fuel, should be stepped up.

In conformity with the principles of the plan of the State Commission for the Electrification of Russia the future problems of power engineering should henceforth be solved from a national economic standpoint, which ensures an increase of the efficiency of social production, the economical use of energy resources and environmental protection. The development of low-waste power cycles, which involve the thorough utilization of fuel, is one of the important directions in this area.

Particular attention will be devoted to the acceleration of technical progress in power construction. Measures have been drawn up for the organization of the high-speed flow-line construction of electric power stations with blocks with a unit capacity of 1 million kW. The construction of the first such series-produced AES, the Zaporozhskaya AES, which should become the standard, has begun.

The Ekibastuzskaya GRES's with a capacity of 4 million kW each are being built rapidly. The thermal electric power stations of the Kansk-Achinsk Fuel and Power Complex with a capacity of 6.4 million kW each will also be built according to the flow-line method.

The Soviet power workers, in realizing Lenin's behests on the electrification of the national economy, will do everything to honorably fulfill the new far-reaching plans of the party.

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CSO: 1822

ELECTRIC POWER

POWER SYSTEM DEVELOPMENT DESCRIBED BY FIRST DEPUTY MINISTERS

Falaleyev on Construction

Moscow IZVESTIYA in Russian 21 Dec 80 p 2

/Article by USSR First Deputy Ministry of Power and Electrification P. Falaleyev: "A Great Program of Construction"/

/Text/ The country is celebrating the 60th anniversary of Lenin's plan of the State Commission for the Electrification of Russia. We are paying great respect to those who set up and embodied the State Commission for the Electrification of Russia, this first step of ours toward the present heights, this plan which commenced the universal electrification of the country. In 1920, when the Eighth All-Russian Congress of Soviets adopted Lenin's program of electrification, it may have seemed incredible. For that was the time when the young Soviet Republic was fighting against foreign interventionists and domestic counterrevolution for its very existence.

According to the plan of V. I. Lenin, precisely electrification should have become the basis for the transformation of backward Russia into a mighty country. "To draft a plan of the electrification of Russia means to provide the keynote for creative economic activity, to build the scaffolding for the implementation of the unified state plan of the national economy"--that is how the goal was formulated. The State Commission for the Electrification of Russia became the first unified, scientifically substantiated plan in history of the building of the socialist economy on the basis of electrification. V. I. Lenin called it the second program of the party.

The plan of the State Commission for the Electrification of Russia was considerably exceeded during the period which was outlined for its fulfillment. The country turned to the solution of new problems. But the principles incorporated by V. I. Lenin in the program did not lose their significance. Here are the main ones: the rapid retooling of the national economy on the basis of electrification, the anticipatory development of power engineering as compared with the rest of the sectors, the concentration of the capacities of electric power stations and their units and the centralized allocation of electric power throughout the country. These principles are also being realized today.

The Unified Power System of the country (the YeES of the USSR) is the largest power association in the world. It covers a territory 3,000 km from north to south and 7,000 km from west to east.

Not without reason is the sector called the front line of technical progress. Compare the figures: 12,000 kW was the capacity of the firstling of the State Commission for the Electrification of Russia, the Kashirskaya GRES, and 1.2 million kW is the capacity in a single power block of the Kostromskaya GRES. Whereas during the preceding five-year plan 300,000-kW units were series-produced units for thermal power stations, now blocks of 500,000 and 800,000 kW are becoming the main "gauge" of heat and power engineering. Such giants make it possible to shorten the construction periods, reduce the capital expenditures and number of personnel and decrease the specific consumption of fuel for the generation of electric power.

The Krasnoyarskaya GES, the Zaporozhskaya and Uglegorskaya GRES's, the largest in the country, now govern the character of the sector. The 10th Five-Year Plan gave life to the Sayano-Shushenskaya GES, which will surpass the Krasnoyarskaya GES. Now more than 70 stations in the country already have a capacity of 1 million kW. They provide more than half of all the electric power generated in the country. The principle of the concentration of the generation of electric power, which was incorporated in the plan of the State Commission for the Electrification of Russia, is thus being realized.

By the end of 1980 the total capacity of our stations will approach 270 million kW, while the generation of electric power will amount to 1.3 trillion kWh, that is, it will almost double as against 1970. The draft of the Main Directions calls for the increase of the generation of electric power in 1985 to 1.55-1.6 trillion kWh.

The structure of the sector will change substantially. At present three-fourths of the electric power is generated at thermal electric power stations, while by the end of 1985 the proportion of hydroelectric and nuclear electric power stations will increase sharply. In the European part of the country, where the scarcity of mineral fuel is the most perceptible, the increase of electric power generation will occur mainly owing to GES's and AES's.

The construction of large hydraulic developments on the rivers of Siberia, the Far East and Central Asia, which make it possible to solve jointly the problems of electric power generation, land irrigation, the supply of water to cities and villages, the development of navigation and fish breeding and the prevention of floods, will be continued.

More than a quarter century has passed since the year in which the power workers of our country built the first nuclear electric power station in the world near Moscow. Now Soviet AES's are in operation in the Far North, the south and the central regions of the country. New power blocks at the Chernobyl'skaya (the Ukraine), Kurskaya, Leningradskaya and Novovoronezhskaya AES's have appeared in recent times. New ones--the Yuzhno-Ukrainskaya, Zaporozhskaya and Smolenskaya AES's--are being built. For the first time in the world our country has developed powerful commercial fast reactors--the prototype of AES's of tomorrow. The largest fast reactor in the world has already begun operating at the Beloyarskaya AES. During the new five-year plan it is planned to introduce 24-25 million kW of new capacities at

AES's. The work on the use of nuclear fuel for the generation of thermal energy will be continued. For example, it is planned to put into operation the first units of the Odesskaya ATETs /nuclear heat and electric power station/. The accelerated development of nuclear power engineering is one of the most important directions of technical progress.

The European part of the country accounts for the main share of electric power consumption and the territory of the east accounts for only 20 percent. The power resources are distributed in inverse proportion. The most abundant deposits lie beyond the Urals--coal at Ekibastuz and in the Kansk-Achinsk basin and the casinghead gas of the oil fields of Tyumen'. The largest fuel and power complexes will be developed on their basis. The first units of the Ekibastuzskaya GRES-1 are already in operation. It is planned to build thermal electric power stations with a total capacity of 20 million kW here in the future.

The construction of the Berezovskaya GRES-1, for which the coal of the Kansk-Achinsk deposit will serve as the fuel, has begun. The program of KATEK /Kansk-Achinsk Fuel and Power Complex/ includes the construction of several superpower GRES's, each of which will annually generate 40 million kWh of electric power. The constellation of GRES's, which run on the casing-head gas of petroleum deposits, will also develop in the region of Surgut.

The construction of the Ekibastuz-Center 1,500-kV DC line and the Ekibastuz-Urals 1,150-kV AC electric power transmission line for the transmission of an enormous amount of electric power to the European part of the country and the Urals has already begun. It is planned to put the first sections of these superpower routes into operation during the new five-year plan.

One of the most important goals set by the party for the sector is the saving of fuel. And Soviet power workers have already made significant gains in this area. In 1975 the specific consumption of fuel was 340 g, by the end of this year the indicator will already be 328 g. On a national scale the saving of just 1 g makes it possible to save 1 million tons of conventional fuel a year.

Owing to the improvement of equipment and to the art of operation Soviet power workers have been able to surpass nearly all the developed countries in economy. During the years of the 10th Five-Year Plan the saving of energy resources was tens of millions of tons of conventional fuel.

The problem of saving resources is being worked on simultaneously by both power workers and consumers: by the reduction of the cost of its generation and its economical consumption. These are components of the same problem. It is important to recall that one-third to one-half as many outlays are required for measures on saving fuel and energy resources as for their production.

The international contacts of power workers are developing actively within the framework of socialist economic integration. The USSR exports some electric power to the fraternal countries. The Soviet experience of operating large power systems was of considerable help to the creation of the Mir International Association, to which the power systems of Bulgaria, Hungary, the GDR, Poland, Romania, Czechoslovakia and L'vovenergo belong. The construction of the long-distance 750-kV

Vinnitsa-Albertirsa (Hungary) electric power transmission line, which reliably connected the YeES of the USSR and the Mir Association, was completed last year. Owing to this it is possible to distribute power resources more effectively, to maneuver capacities efficiently, by transferring flows of power to where it is especially needed now. The awarding of the Golden Mercury international prize to the USSR Ministry of Power and Electrification this year attests to the high appraisal of the activity of Soviet power workers in the areas of economic, scientific and technical cooperation with foreign countries.

The achievements of the power workers determines a great deal in the general course of scientific and technical progress. In the past 15 years alone the electric power-worker ratio in industry nearly doubled, while in agriculture it increased eightfold. This has changed substantially the nature and conditions of work of the Soviet people.

The results of the work of this year produce a feeling of satisfaction. While competing for a worthy greeting of the 26th CPSU Congress, the power workers of Belorussia came forth with the initiative: "From High Work Quality to the Best Production Efficiency" and pledged in addition to the assignments of the year to save 50,000 tons of conventional fuel, on which they will run on the day of the opening of the congress. The construction workers of the Sayano-Shushenskaya GES placed the fifth block under a load ahead of time, in mid-December. This year a 1 million kW power block with a water-moderated water-cooled reactor was put into operation at the Novovoronezhskaya AES. The Ust'-Ilimskaya GES was put into operation with a rating of "excellent." New powerful power blocks are on the eve of being started up: 1,200 MW at the Kostomskaya GRES, 800 MW at the Ryazanskaya GRES, 500 MW at the Reftinskaya GRES and 440 MW at the Rovenskaya AES.

The power worker-operators of the Kostromskaya, Sredneural'skaya, Iriklinskaya, Zaporozhskaya and Belovskaya GRES's have also made good gains. The initiatives of the leading collectives are becoming widespread in the sector.

The power construction workers and the power workers are fully resolved to exert every effort to worthily greet the 26th CPSU Congress.

Borisov on Main Directions

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 21 Dec 80 p 1

/Article by USSR First Deputy Minister of Power and Electrification Ye. Borisov: "High Tension"/

/Text/ Tomorrow is the 60th anniversary of the adoption of the plan of the State Commission for the Electrification of Russia. The first State Long-Range Plan of the comprehensive development of the national economy on the basis of electrification was drafted on the initiative of V. I. Lenin and was called by him the second program of the party. In 60 years great gains have been made under the direction of the Communist Party in the development of the power base of the country. This year the national economy should receive 1.3 trillion kWh of electric power--260-fold more than at the beginning of the First Five-Year Plan!

A developed system of thermal electric, hydroelectric and nuclear electric power stations, high voltage electric power transmission lines and substations has been established in the country. The unit capacity of electric power stations and units is increasing intensively. More than 70 electric power stations with a capacity in excess of 1 million kW each, including 40 stations with a capacity of 2-3 million kW, are now in operation. The collective of the Kostromskaya GRES is placing the first power block in the country with a capacity of 1.2 million kW into pilot industrial operation. The Leningradskaya, Novovoronezhskaya, Kurskaya and Chernobyl'skaya AES's with 1 million kW reactors are in operation. A fast reactor with a capacity of 600,000 kW has been put into operation at the Beloyarskaya AES. The Unified Power System of the USSR now unites stations with a total capacity of 240 million kW and covers all the inhabited territory of the country.

The mighty power base served as the foundation for the retooling of the entire national economy on the basis of the mechanization and automation of production processes and the introduction of modern technology.

The draft plan of the CPSU Central Committee, the Main Directions of USSR Economic and Social Development for 1981-1985 and for the Period to 1990, is revealing new prospects for the further development of power engineering and the electrification of the country. In the final year of the 11th Five-Year Plan it is planned to increase the generation of electric power to 1.55-1.6 trillion kWh. This is 300 billion kWh more than the level of generation this year. This increase alone is equal to the total generation of electric power in the USSR in 1960.

But it is not only a matter of a quantitative increase. Profound qualitative changes will also occur. In the regions of the European part of the country, where industry is most highly concentrated, nuclear power engineering has to be developed expeditiously. The capacity of nuclear electric power stations will increase by 24-25 million kW, while the annual generation of electric power at AES's by the end of the five-year plan will come to 220-225 billion kWh.

It is planned to build new powerful hydroelectric power stations on the rivers of Siberia, the Far East, Central Asia, the Caucasus and Transcaucasia. The Sayano-Shushenskaya GES will reach the rated capacity, the construction of the Kolymskaya GES-1 and the Kurpsayskaya GES on the Naryn River will be completed.

Large power complexes will rise in the Ekibastuz and Kansk-Achinsk basins, where considerable reserves of inexpensive coal, which can be mined by the open-cut method, are concentrated. The construction of large GRES's running on casing-head gas will be developed in Western Siberia. Thus, the program of electrification will be implemented on the basis of the comprehensive use of energy resources.

Under the conditions of the gradual shift of the fuel base of power engineering eastward the transportation of coal, petroleum and gas to the European part of the USSR is being significantly complicated. It is much more advisable to transmit the electric power of eastern thermal electric power stations directly to industrial centers. Superhigh voltage electric power transmission lines are required for this. The construction of two such lines, through which the electric power of the Ekibastuzskaya GRES's will be fed to the regions in which a shortage of it is felt, has already begun.

There is another important item. In the coming decade nuclear fuel will find application in the supply of heat to cities and enterprises. The experience of the Bilibinskaya AES has shown the basic possibility and unquestionable expediency of developing nuclear heat and electric power stations. Nuclear boiler plants will also appear.

Where the opportunities to build large hydroelectric power stations are limited, the construction of pumped-storage electric power stations (GAES's) will be launched. Their role is very important. They make it possible to equalize the operating conditions of the powerful base stations, by covering the "peak" load during the hours of the greatest demand for electric power and taking over its surplus during the night hours. During the new five-year plan the Zagorskaya GAES with a capacity of 1.2 million kW will be put into operation, the construction of the Kayshyadorskaya GAES will begin.

Such in general outline are the main structural changes in power engineering. They pursue such important goals as the saving of petroleum and natural gas, the reduction of expensive long-distance shipments of fuel and environmental protection.

The drive for the conservation of energy resources and the economical consumption of fuel are now becoming even more urgent. Today much obsolete equipment with a high consumption of fuel is in operation at our electric power stations. Much work on its replacement and modernization will be needed. The drive for the conservation of each gram of fuel must be stepped up, the experience of the leading collectives must be used more extensively in all links of the national economy. The decrease of the losses of electric power in the systems during its transportation should be treated with particular strictness.

The achievement of major structural changes in power engineering requires the stepping up of scientific research and experimental design work. A number of pilot industrial plants of a fundamentally new type will need to be developed. The tasks of the coming five-year plan are making greater demands on power machine building, and first of all on the quality of the equipment being supplied. This especially pertains to equipment for nuclear electric power stations.

A business-like discussion of the draft of the Main Directions of Economic and Social Development of the country for the new five-year plan and the future is under way at enterprises and construction projects of the sector. Soviet power workers will exert all their efforts and knowledge for the successful fulfillment of the party plans and the further realization of the slogan outlined by the great Lenin: "Communism is Soviet power plus electrification of the entire country."

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ELECTRIC POWER

MINISTRY EXPLAINS AES REPAIR, CONSTRUCTION PROBLEMS

Moscow IZVESTIYA in Russian 26 Dec 80 p 1

/Article: "The USSR Ministry of Power and Electrification Responds to the Editorial Board"/

/Text/ The unsatisfactory progress of the repair campaign at the enterprises of the USSR Ministry of Power and Electrification, as well as the lag in the placement of capacities into operation at a number of nuclear electric power stations were noted in the editorial "Strict Accounting for Fuel and Power" (IZVESTIYA, No 234).

The USSR Ministry of Power and Electrification has reported to the editorial board that a meeting of the collegium of the ministry the progress of the repair of equipment of electric power stations was reviewed and the necessary decisions were made, which are ensuring the preparation of electric power stations for the transmission of the maximum fall-winter loads. On 1 December 91.8 percent of the power capacities had been overhauled; power equipment not involved in the transmission of the maximum fall-winter loads remained to be sent for overhauling and to be overhauled.

As for the placement of capacities into operation at nuclear electric power stations, at the Chernobyl'skaya AES in the reactor room of power block No 3 the graphite lining of the reactor has been completed, the installation of the technological channels and the connection of the main circulation loop are being finished. In the machine room the installation of turbogenerator No 5 has been completed and the work on the installation of turbogenerator No 6 has been launched on a broad front. It is planned to carry out the physical start-up of the reactor in late February 1981. The number of construction workers and installers has been increased by 650.

At the construction site of the Smolenskaya AES there is a lag in the work on the building of the equipment room, the block of backup systems and the underground engineering mains. At present the equipment room has been turned over for clean installation. The installation of the technological channels in the reactor is being completed. For the purposes of stepping up the work on power block No 1 the USSR Ministry of Power and Electrification issued an order which specified the urgent steps on the completion of the construction and installation work at the Smolenskaya AES.

Regular monitoring of the progress of construction of start-up nuclear electric power stations has been set up.
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ELECTRIC POWER

UKRAINIAN ELECTRIC POWER ENGINEERING ACHIEVEMENTS

Kiev POD ZNAMENEM LENINIZMA in Russian No 22, Nov 80 pp 47-49

/Article by Ukrainian First Deputy Minister of Power and Electrification V. Sklyarov: "To a Qualitatively New Level"/

/Text/ On 22 December our country will celebrate a memorable date--the 60th anniversary of the adoption of Lenin's plan of the State Commission for the Electrification of Russia. In the words of V. I. Lenin /"Communism is Soviet power plus electrification of the entire country"/ /in bolface/ the basis and essence of the economic and technical reequipment of the entire national economy are concentrated in concise form. The long-range plan of the electrification of the country provided, in particular, for the construction over the course of 10-15 years of 30 electric power stations with a total capacity of 1.75 million kW, including 560,000 kW in the Ukraine.

This task was accomplished ahead of time. In a short period the Soviet people achieved enormous gains in the development of the power base. Now the USSR with respect to electric power generation is in first place in Europe and in second place in the world. In our country mighty electric power stations are in operation, the electric power supply system is well developed. The energy of the atom was used for peaceful purposes for the first time in the history of mankind in the Soviet Union.

The history of the scientifically sound, planned, comprehensive development of the economy commences with the plan of the State Commission for the Electrification of Russia, Comrade L. I. Brezhnev noted (see "Leninskim kursom" /By the Leninist Course/, Vol 2, p 85).

Lenin's principles of the electrification of the country were the basis for the First Five-Year Plan of USSR national economic development. They are first of all the retooling of all the sectors of the national economy, the rapid increase of labor productivity, the assurance of the primary development of heavy industry, the achievement of a leading growth rate of the electric power system, the construction of large electric power stations and high voltage electric power transmission lines, the extensive use of local types of fuel and water resources, the development of regional power systems and then the formation of the Unified Power System of the country.

The realization of Lenin's plan of the State Commission for the Electrification of Russia and subsequent plans of the development of the national economy made it possible to develop a mighty power base in the Ukraine.

The power workers of the republic made large gains during the 10th Five-Year Plan. By the beginning of 1980 the total installed capacity of the electric power stations of the Ukraine was 44 million kW. The generation of electric power exceeded 231 billion kWh, or 18.6 percent of its total generation in the country.

The Zaporozhskaya and Uglegorskaya GRES's reached the rated capacity of 3.6 million kW. These stations alone generate in a year almost as much electric power as all the thermal electric power stations of the Ukraine provided in 1960.

The Kiyevskaya TETs-5 has reached the rated capacity of 700,000 kW, the first two central heating units with a capacity of 120 MW each have been put into operation at the Khar'kovskaya TETs-5. The construction of the Zuyevskaya GRES-2 and the Kiyevskaya TETs-6 is continuing.

The last two hydraulic turbogenerator units at the Dneproges-2, with the start-up of which the capacity of the Dneprovskaya GES imeni V. I. Lenin reached 1.5 million kW, were put into operation ahead of time. A new hydroelectric power station with a capacity of 600,000 kW is being built on the Dnestr River.

The principle of the concentration of capacities is being realized consistently. Today 14 thermal electric power stations, at which 97 power blocks with a total capacity of 27.9 million kW have been installed, are in operation in the Ukraine.

Measures on increasing the level of operation of power equipment are being purposefully implemented. This is making it possible to improve the technical and economic indicators--to reduce the specific consumption of fuel per released kWh of electric power, to increase the utilization ratio of the installed capacity of the most economical unitized equipment and its operational readiness ratio.

During the 10th Five-Year Plan electric power engineering rose to a qualitatively new level. A change in the structure of the capacities being put into operation is a feature of its development. Nuclear power engineering is being rapidly developed. Whereas during the Ninth Five-Year Plan the proportion of the capacities being put into operation at thermal electric power stations was 89 percent and at hydroelectric power stations was 11 percent, during the present five-year plan it decreased respectively to 50.4 and 2.4 percent. At the same time at nuclear electric power stations the proportion of the capacities being put into operation was 47.2 percent.

In 1977 the first reactor in the republic with a capacity of 1 million kW was put into operation at the Chernobyl'skaya AES. Since its start-up it has generated in excess of 30 billion kWh of electric power, having saved for the national economy 15 million tons of fuel.

A reactor with the capacity of 440 kW is being put into operation at the Rovenskaya AES, work is being performed on the construction of the Zaporozhskaya, Yuzhno-Ukrainskaya and Krymskaya AES's, as well as the Khmel'nitskaya AES, which is being built together with CEMA member countries. In the future practically only AES's will be put into operation.

The electric power supply system of the republic underwent further development during the 10th Five-Year Plan. The total length of electric power transmission lines by the end of 1980 will come to 900,000 km. In 1979 the first interstate electric power transmission line, the 750-kV Vinnitsa (USSR)-Albertirsa (Hungary) line, was put into operation.

The power workers of the republic are devoting constant attention to the improvement of the electrification of agriculture. For example, the provision of livestock complexes and poultry factories with reserve electric power supply sources is now more than 95 percent, while by the end of this year this work will have been completed in full.

Along with the overall favorable results in the work of the sector of the republic during the 10th Five-Year Plan there are significant oversights and untapped reserves. In a report at the December (1979) Plenum of the Communist Party of the Ukraine Member of the Politburo of the CPSU Central Committee and First Secretary of the Central Committee of the Communist Party of the Ukraine Comrade V. V. Shcherbitskiy indicated the shortcomings in the work of some electric power stations. Therefore the republic power workers are taking all steps to eliminate the bottlenecks in their work. A set of measures on the modernization and renovation of heat and power equipment, the increase of the technical level and the optimization of the operating conditions of electric power systems, the introduction and development of automated control systems is being implemented.

The increase of the utilization of highly economical power blocks, as well as the improvement of the shop technical and economic indicators and the shortening of the unplanned downtimes of equipment are one of the main reserves for improving the work of the sector. (Each unplanned shutdown of a power block with a capacity of 300,000 kW costs the state more than 2,000 rubles and losses of 150 tons of fuel.)

The 10th Five-Year Plan is coming to an end. The republic power workers are exerting every effort to successfully fulfill the important tasks set for them by the party and to lay a firm basis for successful work during the 11th Five-Year Plan. The October (1980) CPSU Central Committee Plenum has called upon them to do this.

Among the initiators of the socialist competition are machine operator of the power blocks of the Ladyzhinskaya GRES N. Ye. Yurchenko, senior machine operator of the power block of the Kurakhovskaya GRES V. M. Zavarykin and machine operator of the power blocks of the Zmiyevskaya GRES A. V. Petrenko.

Noteworthy labor initiatives arose and became widespread at republic power enterprises during the 10th Five-Year Plan. The collective of the Kurakhovskaya GRES imeni 60-letiya Velikoy Oktyabr'skoy sotsialisticheskoy revolyutsii called for the more efficient use of internal reserves and the economical consumption of fuel and energy resources. This initiative was supported in 50 collectives of the enterprises of the republic Ministry of Power and Electrification, which enabled them in nine months of this year to save 91,000 tons of conventional fuel and 22.5 million kWh of electric power.

USSR State Prize winner Georgiy Alekseyevich Pilonenko, machine operator of a power block of the Uglegorskaya GRES, came forth with the initiative "My Personal

Contribution to the 10th Five-Year Plan." More than 11,000 production workers of the sector supported it. As a result tens of thousands of tons of conventional fuel and millions of kWh of electric power were saved this year.

The initiative of the Rostov workers "Work Without Laggards" became widespread everywhere in the collectives of the power enterprises of the sector. The initiative of the innovators of Zaporozhskaya Oblast "Manual Labor on the Shoulders of Machines" was taken up by 129 labor collectives of the ministry.

About 4,000 power workers of the republic reported the fulfillment of their own five-year plans by the 110th anniversary of the birth of V. I. Lenin.

The Communist Party and the Soviet Government have expressed a high opinion of the labor of the power workers. Many of them have been awarded high state awards. The Order of Lenin was awarded to 5 people, the Order of the October Revolution was awarded to 10 people, the Order of the Labor Red Banner was awarded to 81 people. The titles "Honored Power Worker of the USSR" and "Honored Power Worker of the Ukrainian SSR" were conferred on 23 power workers.

Today more than 89,000 shock workers of communist labor work in the sector. The lofty title "Collective of Communist Labor" has been awarded this year to 21 enterprises, 494 shops, 1,560 sections and shifts and 2,792 brigades.

With each day the socialist competition for a worthy greeting of the 26th CPSU Congress is developing more and more extensively. In the forefront of the labor competition are the collectives of the Kurakhovskaya GRES imeni 60-letiya Velikoy Oktyabr'skoy sotsialisticheskoy revolyutsii and the Zaporozhskaya GRES imeni XXV s"yezda KPSS, which decided to mark the forum of communists of the country with new labor achievements and to work successfully during the first year of the 11th Five-Year Plan.

Now the republic power workers are analyzing what has been done, are outlining new limits of the improvement of efficiency and work quality and are seeking reserves and means for increasing labor productivity.

In his speech at the October (1980) CPSU Central Committee Plenum Comrade L. I. Brezhnev indicated the need to step up the drive for the saving of fuel and energy resources. "...I," he said, "have in mind both the saving, which the determined struggle against mismanagement and wastefulness yields, and the saving connected with a purposeful technical policy and capital investment policy."

At many enterprises cases of the inefficient use of electric power and thermal energy occur, the assignments on saving them are not being fulfilled. That is why it is necessary to strive for the strictest observance of the set limits and the reduction of the specific rates of consumption. For our industry consumes more than 65 percent of the electric power generated in the country. A decrease of the consumption of electric power by republic enterprises by 1 percent alone will make it possible to save in a year 1.3 billion kW of it.

Questions of the saving of fuel and energy resources should constantly be at the center of attention of power workers, all the workers of industrial enterprises, kolkhozes and sovkhozes. The know-how of the leading collectives, which consume fuel and power wisely, should be disseminated more extensively.

These days the power workers of the Ukraine are continuing to work intensively on accomplishing the national economic tasks of the 10th Five-Year Plan. In response to the decisions of the October CPSU Central Committee Plenum and the Fourth Session, 10th Convocation, of the USSR Supreme Soviet the workers of the sector are fully resolved to increase their contribution to the strengthening of the economic might of our country and to worthily greet the 26th CPSU Congress.

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ELECTRIC POWER

SOUTH UKRAINIAN POWER SYSTEM DEVELOPMENT

Kiev PRAVDA UKRAINY in Russian 14 Jan 81 p 2

/Article by V. Timchenko, chief of a department of the USSR Ministry of Power and Electrification: "The South Ukrainian Power Complex"/

/Text/ The daily load in the power systems operating in the country is uneven: the peak hours come in the evening, while at night the consumption of electric power decreases significantly. The night load, for example, in the regions of the center, the northwest and the south of the European territory of the USSR is only 55-60 percent of the maximum load.

The operation of power blocks in a sharply varying mode causes a substantial excessive consumption of fuel, adversely affects the state of the equipment (its wear increases, the service life decreases) and worsens the economic indicators of operation. Thus, the large power associations should have an adequate number of maneuverable power sources.

The problem of covering the variable part of the load schedule, or, as it is still called, the problem of the peak, can be solved by the construction of special electric power stations, first of all hydroelectric power stations (GES's) and pumped-storage electric power stations (GAES's), which can be put into operation quickly.

The construction of pumped-storage electric power stations in the European part of the country is outlined by the draft plan of the CPSU Central Committee, the Main Directions of USSR Economic and Social Development for 1981-1985 and for the Period to 1990. One of them--the Konstantinovskaya GAES--will become a part of the South Ukrainian Power Complex, which will unite a nuclear, hydroelectric and pumped-storage electric power stations.

The operation of a pumped-storage electric power station is based on the cyclical transfer of the same volume of water between two reservoirs located at different levels. With the discharge of water from the upper reservoir into the lower one through the turbines the GAES operates like a conventional GES, feeding power into the power system, while with the pumping of the water in the opposite direction it operates like a pumping station. Operating at night in the pumping mode, the pumped-storage electric power stations consume the surplus power of thermal electric power stations. As a result the operating conditions of the latter are equalized and the need to shut them down disappears.

Thus, GAES's improve the operating conditions of thermal, as well as nuclear electric power stations, they can be used in power systems as an emergency reserve, for regulating the capacity, especially during periods of sharp increases and drops of the load.

In contrast to a GES the pumped-storage electric power station is equipment either with reversible hydraulic machinery (instead of conventional turbines) or with additional pumps. The electrical machinery of a GAES, as a rule, is used in two modes: the generator and motor modes.

In recent years much attention has been devoted in the world to the construction of power complexes, which include GAES's and large thermal or nuclear electric power stations. The technology of generating electric power is responsible for the location of TES's and AES's on large bodies of water, which should simultaneously be used for the purposes of water power as well.

The construction of the first such complex in the USSR (the South Ukrainian Complex) has begun on the Southern Bug River. It will unite the Yuzhno-Ukrainskaya AES (4 million kW), the Tashlykskaya GES (1.8 million kW) and the Konstantinovskaya GAES (0.38 million kW). Along with the Tashlyk and Konstantinovka reservoirs the Aleksandovka reservoir, which will receive water from the GES and the GAES, is also a part of the complex.

According to the plan the water from the condensers of the AES enters the Tashlyk reservoir, is cooled and then during the four hours of the evening peak is discharged through the turbines of the Tashlykskaya GES into the Aleksandrovka reservoir. At the same time the GAES operates in the turbine mode, also discharging water from the Konstantinovka reservoir into the Aleksandrovka reservoir.

During the hours of the night and day dips in the load schedule in 7-11 hours the water is pumped by the reversible units of the GAES from the Aleksandrovka reservoir into the Konstantinovka reservoir. And then by the pumping station of the first ascent to the Tashlyk reservoir to the water intake of the AES, from which it is fed by the pumps of the second ascent into the cooling system of the AES.

The creation of a powerful complex of electric power stations on the Southern Bug will make it possible to improve the supply of electric power to consumers. An appreciable impact is obtained with the simultaneous construction of stations as a result of the more complete utilization of underground mains, machinery and so on. Thus, by combining facilities on a single site of the South Ukrainian Complex it is possible to obtain a saving of capital investments of approximately 15 percent as compared with the separate construction of the three electric power stations and the irrigation works. The problems of supplying water to the AES and cooling its hot water are being successfully solved during the operation of the complex. The reservoir of the GAES will be used as a multipurpose reservoir.

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ELECTRIC POWER

START-UP OF FIRST REACTOR AT ROVENSKAYA AES

Kiev RABOCHAYA GAZETA in Russian 24 Dec 80 p 2

[Article (Kuznetsovsk): "There Is Poles'ye Current!"]

[Text] By this time the construction workers of the nuclear giant have been in the western Poles'ye more than a year. They appeared here, on the right sandy bank of the calm Styr near ancient Rafailovka, for the first time seven years ago. They had to perform a large amount of work so that the day before yesterday the first power block would make its first revolutions and would supplement the power system of the country with its current.

The start-up of the block is a great labor victory of the collectives of many construction and installation and specialized administrations of the Yugteploenergomontazh, Elektroyugmontazh and Yugenergomontazh trusts, the construction administration and the management of the AES, the operators of the reactor and turbine shops and the workers of various laboratories.

Several days ago the reactor was fully charged with nuclear fuel and sealed. The circulatory washing and testing of the equipment and pipes, their inspection and hot break in were carried out fastidiously. Such a labor-consuming job as the hydraulics of the loop was carried out, all the systems ensuring the functioning of the main blocks during the start-up were tested, the instrumentation, the protective systems and the automated control system were made ready.

"At all the 'hot spots'," said D. Dobarin, deputy chief engineer of the AES, "the people worked tenaciously and purposefully, as it should be in a special labor effort in honor of the 26th CPSU Congress."

The physical, dynamic and hydraulic experiments to get a reading of the performance of the reactor itself and the systems ensuring its operation showed the great reliability of the unique station and the first 150-m cooling tower, at which all international requirements on the protection of personnel, shops, equipment and the environment have been scrupulously met.

"Now the first power block is in the hands of experienced operators," V. Bayuklin, chief of the reactor shop, commented on the event. "They have all undergone special training at allied enterprises, particularly the Kol'skaya and Novovoronezhskaya AES's."

The power block has generated the first hundreds of kWh of electric power. The assignments outlined in the Main Directions of USSR Economic and Social Development for 1976-1980 has been fulfilled: the Rovenskaya AES has begun to work!

The nuclear construction workers still have ahead a large amount of work, which has been recorded in the draft plan of the CPSU Central Committee for the 11th Five-Year Plan.

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ELECTRIC POWER

BRIEFS

DERBENT-KHACHMAS POWER LINE--Makhachkala, 6 Dec--Yesterday the 330-kV Derbent (Dagestanskaya ASSR)-Khachmas (Azerbaijan SSR) electric power transmission line was placed under an industrial load. The 100-km route united the systems of the Northern Caucasus and Transcaucasia. With its placement into operation the power of the Chirkeyskaya GES began to flow into the unified electric power "river." This hydroelectric power station with a capacity of 1 million kW, which was built on the Sulak, is reliably supplying power to the plants and settlements of the autonomous republic. The most remote alpine auls have been connected to the state system. And now the power of the GES is also being delivered to Azerbaijan through the new elecpower transmission line. /Text/ /Baku VYSHKA in Russian 7 Dec 80 p 1/ 7807

EKIBASTUZ-CENTER SUPERHIGH VOLTAGE LINE--Pavlodar, 13 Dec--The first pylons of the unique Ekibastuz-Center superhigh voltage electric power transmission line have been erected on the steppe near the Irtysh River. The power of the cascade of GRES's being built here will be fed through it at a tension of 1,500 kV to the European part of the country. The electric power transmission line will be the first in a series of long-distance DC electric power transmission lines, which ensure the transportation of large amounts of power from the eastern regions of the USSR. The length of the line is 2,400 km. It will cross steppes, mountain ranges and tens of rivers. Special pylons of original design, which make it possible to reduce considerably the consumption of metal, have been developed for the electric power transmission line. /Text/ /Moscow PRAVDA in Russian 14 Dec 80 p 1/ 7807

LITHUANIAN POWER ENGINEERING--Kaunas--The staff members of the Lithuanian Department of the All-Union State Planning, Surveying and Scientific Research Institute of Power Systems and Electric Power Networks have completed the work on the engineering plan of the 330-kV electric power transmission line which will stretch from the Ignalinskaya AES to Utena and Panevezhis. The plan received the high rating of specialists of the USSR Ministry of Power and Electrification. Now the scientists are developing an information system of data on the basis of the Elektronika-60 microcomputer. It will shorten considerably the processing time of the data received from power enterprises and the largest electric power stations of the republic. Such a system is being adopted for the first time in the country. /Text/ /Vilnius SOVETSKAYA LITVA in Russian 6 Dec 80 p 4/ 7807

BAKU POWER SYSTEM IMPROVEMENTS--The collective of the Baku City Electric Power System completed ahead of time, on 12 December, the conversion of sections of the electric power system to a higher voltage. In all during 1980 11 transformer substations were converted from a tension of 220 V to 380/220 V and 12 transformer substations were converted from a tension of 2 kV to 6 and 10 kV. As a result the losses of electric power in the system were reduced by 1.1 million kWh, the economic impact was more than 70,000 rubles. The supply of electric power was improved in the settlements of Balakhany, Raman, Buzovna, Shuvelyan and others. Chiefs of the network regions Sh. Dzhafarov and I. [illegible]anov and electricians S. Zamanov, E. Mamedov and I. Aliyev especially distinguished themselves in this work. In all during the 10th Five-Year Plan the Baku City Electric Power System converted 156 transformer substations to a higher tension from 220 V to 380/220 V. As a result the losses of electric power were reduced by 8.7 million kWh, while the economic impact was 294,000 rubles. /Text/ /Baku VYSHKA in Russian 21 Dec 80 p 1/ 7807

IVANOVO-VOZNESENSKAYA GRES EXPANSION--Komsomol'sk (Ivanovskaya Oblast), 13 Dec--The Ivanovo-Voznesenskaya GRES, which was built half a century ago in the textile region in accordance with Lenin's plan of the State Commission for the Electrification of Russia, is now going through a second birth. The construction of the building of the gas turbine station has begun here. One of the first six regional stations of the Central Industrial Region, which were build in accordance with the decision of the Eighth Congress of Soviets, it will also become one of the first gas turbine stations in the country. Its first section with a capacity of 321 MW will be put into operation during the 11th Five-Year Plan. The three gas turbines will make it possible to increase sixfold the capacity of the existing GRES. /Text/ /Moscow PRAVDA in Russian 14 Dec 80 p 6/ 7807

KUREYSKAYA GES--Krasnoyarsk, 14 Dec--The first bucket of dirt has been lifted from the foundation pit of the main structures of the Kureyskaya GES. The earth dam of another northern hydroelectric power station with a capacity of 500,000 kW is rising here, above the Arctic Circle, on the right tributary of the Yenisey, the Kureyka. /Text/ /Moscow PRAVDA in Russian 15 Dec 80 p 1/ 7807

PRIMORSKAYA GRES PROGRESS--Vladivostok--"Start"--this order resounded in the machine room of the Primorskaya GRES, where thousands of installers, adjusters and power workers had gathered. The unique boiler assembled by them, the installation weight of which was 10,000 tons, was fired up. A mighty stream of steam hit the blades of the most powerful power block in the Far East. With the placement of the next unit into operation the capacity of the electric power station increased 1.5-fold. The electric river will become even more powerful by 1985, which in conformity with the draft of the Main Directions the construction of the last power block will be completed here. But 10 years ago there were swamps here. During the years of two five-year plans the buildings of the largest electric power station beyond Baykal rose on the basis of the nearby coal deposit, and the multistory apartment houses of the town of power workers, Luchegorsk, rose next to it. The Primorskaya GRES was connected to the united power system of the Far East, to which the electric power stations of Amurskaya Oblast, Khabarovskiy and Primorskiy krays, particularly the firstling of Far Eastern hydraulic power, the Zeyskaya GES, belong. In connection with the construction of the Baykal-Amur Main Rail Line and the Southern Yakut Industrial Complex an even longer system is being formed: the maritime region--the Amur River region--Southern Yakutia. The growth of the electric power muscles will help to implement the party decisions on the accelerated development of the natural resources and the comprehensive development of the Far East. /Text/ /Moscow IZVESTIYA in Russian 26 Dec 80 p 1/ 7807

SAYANO-SHUSHENSKAYA GES CONSTRUCTION--Sayanogorsk, Krasnoyarskiy Kray--On 21 December the fifth unit of the Sayano-Shushenskaya GES was placed under a load. It is noteworthy that this event took place on the eve of the 60th anniversary of Lenin's plan of the State Commission for the Electrification of Russia. With the placement of the fifth machine into operation the capacity of the Sayano-Shushenskaya GES reached 3.2 million kW. The placement of the complex of the fifth unit into operation is confirmation of the good tradition of the hydraulic engineers--to complete operations ahead of time. In 15 days of December alone over 40,000 m^3 of concrete were poured into the dam--this is 10,000 m^3 more than the plan assignment. The 200-m water conduit of the unit was installed according to a fundamentally new plan. There are also innovations in the assembly of the machine itself. Whereas at the first units the components of the housing of the stator were assembled in the crater, this time the housing was completely assembled on the installation yard and was transferred totally to the crater of the unit. Hours, days and weeks are thus being saved. A search for new ways to put capacities into operation ahead of time is typical of the Sayansk hydraulic engineers. An example of this is the work of the electricians of the Krasnoyarsk Installation Section of the Gidroelektromontazh Trust, which Konstantin Dorogov heads. Not by chance was the name of the brigade leader among the winners of the USSR State Prize of this year. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 23 Dec 80 p 1] 7807

FOURTH LENINGRADSKAYA AES REACTOR--Sosnovyy Bor (Leningrad Oblast), 26 Dec--The construction workers, installers and specialists of the Leningradskaya AES imeni V. I. Lenin have marked the finish of the 10th Five-Year Plan with a new labor achievement. Today the physical start-up of the fourth "millionaire" reactor was carried out. The construction and installation of the new reactor were carried out considerably more rapidly as compared with the three preceding blocks. "The Leningradskaya AES is the firstling of a new generation of Soviet electricity plants with a large unit capacity," said A. Yeperin, chief engineer of the station. "The station is the largest in Europe. During the years of the 10th Five-Year Plan more than 65 million kWh of electric power were generated here." The participants in the construction and the collective of the station have pledged to place the fourth block under an industrial load by the opening of the 26th CPSU Congress. [Text] [Moscow KRASNAYA ZVEZDA in Russian 27 Dec 80 p 1] 7807

EQUIPMENT FOR SAYANO-SHUSHENSKAYA GES--The Leningrad Elektroapparat Association has produced an equipment and generator complex for the Sayano-Shushenskaya GES. The introduction of this equipment will make it possible to save 1 million rubles. The complex, which has been built for the first time, also reduces considerably the areas and volumes of the stationary equipment. [Text] [Moscow KRASNAYA ZVEZDA in Russian 21 Dec 80 p 4] 7807

SUPERPOWER TRANSFORMER--A transformer with a capacity of 1 million kVA for a tension of 500,000 V has been built at the Zaporozhtransformator Production Association and has undergone the basic tests. With the use of such equipment it will be possible to reduce significantly the losses of electric power during transmission. The first model of the superpower transformer is intended for the Ryazanskaya GRES. And their series production will begin during the next five-year plan. [Text] [Moscow KRASNAYA ZVEZDA in Russian 21 Dec 80 p 4] 7807

GIANT AES TURBINE--The assembly of the blocks of a unique unit--a turbine with a capacity of 1 million kW for the Yuzhno-Ukrainskaya AES--has been completed at the Khar'kovskiy turbinyy zavod imeni Kirova Production Association. The series output of such turbines will begin during the next five-year plan. The low-pressure rotor for the 1 million kW nuclear turbine is shown in the photograph /photo not reproduced/. Its weight is 170 tons. /Text/ /Moscow KRASNAYA ZVEZDA in Russian 21 Dec 80 p 4/ 7807

CHEBOKSARSKAYA GES START-UP--The labor biography of the Cheboksarskaya GES has begun: the first unit of the station of the final stage of the Volga Power Cascade has been placed under an industrial load. The entire country helped the hydraulic engineers of Chuvashia to fulfill this important item of the socialist obligations adopted in honor of the 26th CPSU Congress. In the first section of the machine room the masters now are the operating engineers. And installation work on the other units is being launched in the neighboring chambers. In order to hasten the date of their placement into operation, the installers are carrying out the assembly of the blocks and parts in advance. The construction of the locks, through which Volga ships will pass this spring, is being continued at the same time. With the start-up of all 18 units its capacity will be 1.4 million kW. The station will generate annually 3.3 billion kWh of electric power. /Text/ /Minsk SEL'SKAYA GAZETA in Russian 6 Jan 81 p 1/ 7807

CSO: 1822

PROGRESS, FAULTS IN BUILDING EKIBASTUZ POWER CENTER DESCRIBED

Moscow PRAVDA in Russian 26 Dec 80 p 2

[Article by Yu. Razgulyayev (Pavlodar-Ekibastuz): "Ekibastuz's Energy"]

[Text] Until recently enormous bastions of coal heaps were the most typical feature of the Ekibastuz landscape. They met the person who arrives here even beyond the city limits, and then they accompany him wherever he turns. Hills of stripped rock also are rising up now. But for the first time smokestack beacons of the GRES's that are under construction now appear on the horizon, tens of kilometers from the city. One of them, equal to the Eiffel Tower in height, is already smoking, and a second is almost equal to it in growth.

The first construction workers appeared at the GRES-1 site on a frosty winter day in 1976. An excavator operator then searched with difficulty for a stake driven into the snow-covered ground and removed the first bucket of soil from a future foundation pit. And a few weeks later N. Yedokh's brigade installed the first column of the main building. For a long time a red flag, which signified the opening of the first page in the history of the power-engineering giant, flew on this column. T. Sarsenbin's brigade became the hero of the second page. It poured the footing for the first power unit. Then came the turbine installers under V. Moiseyev.

Fresh in everyone's memory here at the station are the tense days of the prestart-up period, when the power workers got the first power units to rotate. This was at the beginning of this year, and since then the turbines have been able to generate about 2 billion kw-hr of cheap electricity. But this was only a start in the flow of a powerful stream of electricity. In the next few years Ekibastuzers are to put into operation four power stations with a total capacity of 16 million kw.

The power-facility builders say that the first units are always the most difficult. Many site-wide operations and the buildup of the site had to be accomplished. And the collective needed time to get experience and to assimilate the construction and installing technology. It is not astonishing that the Ekibastuzers installed the second unit much more rapidly than they did the first. The time was even more compressed for the third. And later, on coming to the fourth, and the fifth....

One of the main advantages in erecting a series of electric-power stations is that the large operating front (32 units are to be installed at the 4 stations) will enable the most progressive flow-line technology to be used. And the basis for this flow-line operation has already been laid. While the installers and setting-up men "breathe life" into the third and fourth units, the builders are readying the "cells" for the next ones, installing a second smokestack and finishing a main building. And a portion of the collective has already moved to the site of the second GRES. And each such station will equal the celebrated Bratskaya GES in capacity.

But however great is the sweep of construction of the power stations, the base of Energograd, as they sometimes call Ekibastuz, still is coal. It was the unique coal deposit that gave the impulse to create the huge fuel and power complex.

Much has been written already about this field. And also about the fact that the coal here comes practically to the surface, and about the unprecedented thickness--up to 180 meters--of its seams. But during the current five-year plan Ekibastuz has become famous not simply for its natural riches but primarily for its outstanding labor achievements and the ever-increasing might of the stream of coal. Compare these figures: in 1955, when the first strip mine was introduced, little more than 2 million tons of coal were obtained. In 10 years mining had increased to 14.5 million tons, and during the following decade it tripled again. And by the end of the current five-year plan Ekibastuz's coalmen should mine about 70 million tons of fuel. Not one of the country's coal basins has experienced such a high pace. What has helped to complete such a precipitate jump?

"Visit the Bogatyr' Strip Mine," advised General Director of Ekibastuzugol' [Ekibastuz Coal-Production Association] Hero of Socialist Labor S. Kurzhey, "and then it will all become clear."

Actually, Bogatyr' is the largest strip coal mine in the world today. Its capacity is 50 million tons of fuel per year. For comparison, let us say that not once has the entire Karaganda Basin, with its more than a score of underground mines, ever mined that amount of coal in a year. It is here that the highest labor productivity in the branch is achieved--almost 1,400 tons of coal per person per month.

Its powerful equipment, primarily the rotary excavators, staggers the imagination. For example, a complex manufactured at the Novyy-Kramatorsk Machine-Building Plant can mine 5,000 tons of fuel and load it into railroad cars in an hour.

No one imagines any longer any other method for excavating the Ekibastuz field. Yet at the beginning of the 1960's many did not believe that the local coal could be mined by multiple-bucket excavators. The first rotary unit did not operate at the mine face for even a day before it literally collapsed in pieces. But the association's specialists did not stumble. Along with scientists and designers, they tested one model after another, and they improved the mining technology. And still they mined their coal. Right now practically all Ekibastuz coal is mined by rotary complexes.

"Otherwise we could not bring daily output to 200,000 tons," says S. Kurzhey. "And by the end of the 11th Five-Year Plan even this figure should be greatly increased."

Yes, each day Ekibastuz sends out up to 3,000 carloads of fuel. The coal goes to more than 20 electric-power stations in the Urals, Siberia and Kazakhstan. But the nature of this mineral is such that, along with the useful substance, just as much useless rock is mined.

The high-ash coal has to be burned locally. Scientists came to this conclusion a long time ago. The most effective utilization of Ekibastuz's riches began during the 10th Five-Year Plan. When the entire series of GRES's comes to full capacity, 64 million tons of coal will be burned in its fireboxes each year. And the power obtained here will be sent over superhigh-capacity power transmission lines to the country's European portion. This is in the future. Ekibastuz's energy has given a powerful impetus to the development in northeastern Kazakhstan of a large territorial production complex--Pavlodar-Ekibastuz.

In this connection, I recall a visit to the main control center of Pavlodarenergo [Pavlodar Regional Electric-Power Administration]. An enormous panel occupied one of the walls here on which electric-power lines, power units and consuming enterprises were depicted by conventional signs. This system is constantly alive--small alarm lights twinkle for disconnections, endless charts of instrument recorders make tracings, and telephones ring. But the panel does not just record emergency situations. The Irtysh-Karaganda Canal is cutting through the steppe, and dots for the pump stations have appeared on the diagram. A new unit of the Ekibastuzskaya GRES gives current, and one more smelting furnace at the Yermak Ferrous Alloys Plant goes into operation--and the diagram reacts to all this. During the current five-year plan the power engineers have had to introduce tens of such changes.

Actually, the Bogatyr' Strip Mine, a huge oil refinery and new capacity for producing alumina have gone into operation here in accordance with 25th CPSU Congress decisions. The output of products of the Yermak Ferrous Alloys Plant has almost tripled, and preparations have started for producing the giant of the steppes--the Kirovets.

But nevertheless, the erection of the Pavlodar-Ekibastuz Territorial Production Complex is being conducted with some lagging. Mainly this is related to the GRES series. The first two blocks should have gone into operation last year. Flow-line construction technology presupposes a precise pace--two units each year. In order not to miss a step, the power workers are to turn over this year not two but four units. Actually, the introduction of even the third unit is in doubt. Delay in introducing a production base has been telling. The fact that almost the full amount of installing and setting-up operations are being carried out by specialists on temporary duty from other cities does not help to accelerate the pace here.

The lag in construction of the coal portion of the fuel and power complex is causing serious concern. By the end of this year the Ekibastuzers are to mine about 100 million tons of coal per year. For this purpose it is necessary to put into operation the new Vostochnyy Strip Mine and to rebuild the Severnyy Strip Mine. The amount of work here is calculated in the hundreds of millions of rubles' worth, but even today the design documentation still is not ready.

It must be said frankly that the USSR Ministry of Coal Industry pays little attention to this most important facility. In planning enormous increases in mining, the industry's managers act as if they had forgotten about the fact that Ekibastuzshakhtostroy [Ekibastuz Mine-Construction Combine] is assimilating only

20-25 million rubles per year. Who will build the strip mines, the housing and the facilities for cultural and everyday-amenity purposes?

Incidentally, the question of the social development of the complexes is more severe. It would seem that an integrated approach to the region's problems would enable capital investment to be used with the greatest effectiveness and to be concentrated on the most important sectors, and would enable the problems of everyday facilities and housing to be solved successfully. Actually, each ministry tries to engage above all in production.

"Here we see the main defect of the departmental approach to the implementation of a large state program," says First Secretary of the Pavlodarskaya Oblast party committee B. Pisayev. "We have run into the most severe negative consequences of such an approach several times. Let's take the tractor plant alone. Minsel'khozmash [Ministry of Tractor and Agricultural Machine Building] has cut the program for housing construction every year. And when they erected a high-capacity steel-smelting department at the plant, it turned out that there was simply no one to work at it. Unfortunately, even today, in building the plant for producing high-powered wheeled tractors, the ministry tries by any means to cut the allocations for the social needs of its workers...."

It must be said that other industries are repeating the error of the tractormakers. Last year PRAVDA criticized USSR Minenergo [Ministry of Power and Electrification] for the low pace of housing construction in Ekibastuz. How did the industry's managers react to the criticism? They simply took and reduced the plan for introducing housing for Ekibastuzenergostroy [Ekibastuz Trust for the Construction of Power-Engineering Facilities] by 30 percent.

The struggle with departmentalism is one of the chief concerns of the oblast party organization. Here is just one example. Organizations that represent 25 different ministries are engaged in construction in the oblast. Each of them tries to have its own quarry, casting yard and mix plant and, at times, tries to borrow its neighbor's materials. It would seem that an option suggests itself: to gather all the resources together and create a high-capacity single base for producing modern, economical materials. But departmental interests prevent this.

The 11th Five-Year Plan will be a period of more accelerated development for the Pavlodar-Ekibastuz Territorial Production Complex. The main problem is to put the riches of the Irtysh region at the service of the motherland.

11409
CSO: 1822

FUELS

STEPS TO MAKE QUICKER USE OF SCIENTIFIC RESULTS RECOMMENDED

Baku VYSHKA in Russian 3 Jan 81 p 2

[Article by F. Akhundov, director of AzNIETI [Azerbaijan Scientific-Research Institute for Electrical Equipment]: "Introduce Innovations More Rapidly"; passages enclosed in slantlines printed in boldface]

[Text] Our institute is a leader among USSR Ministry of Electrical-Equipment Industry institutes in the development of electrical equipment for the oil and gas industry.

The modern electrical equipment that the institute develops is manufactured by Minelektrotekhprom [Ministry of Electrical Equipment Industry] plants, and it is introduced at enterprises of the oil and gas industry, while the power supply for it comes from Minenergo [Ministry of Power and Electrification] systems that supply electricity. Therefore, the special interest of our institute's collective in the lines of the CPSU Central Committee's draft, "The Main Directions for the Economic and Social Development of the USSR During 1981-1985 and During the Period up to 1990," that refer to Minelektrotekhprom, Minnefteprom [Ministry of Petroleum Industry], Mingazprom [Ministry of Gas Industry] and Minenergo and to related areas of the national economy is understandable.

During the 10th Five-Year Plan the collective successfully carried out plans for scientific research and experimental development work, as well as commitments made in an agreement about socialist competition with Transcaucasian electrical equipment institutes NIIET [Scientific-Research Institute for Electrical Equipment] (Tbilisi) and VNIIKE [All-Union Scientific-Research Institute for Integrated Electrical Equipment] (Yerevan).

AzNIETI has close business ties with manufacturing plants and oil and gas industry enterprises and extends them technical assistance in introducing new developments. The institute has had good creative collaboration with our republic's organizations and enterprises--with Azneft' [State Association of the Azerbaijan Oil Industry], the Administration for Transcaucasus Trunk Oil Pipelines, the Bakelektroavtomat plant, and others.

Progressive types of petroleum-related electrical equipment are produced serially by many Minelektrotekhprom plants in accordance with the institute's developments. Eleven of these types are produced with the State Emblem of Quality. Among them are completely outfitted substations for cluster wells that are intended for operation in the Far North environment, electromagnetic brakes, sets for controlling hoist drives, and other things.

The bases for high indicators for new types of electrical equipment that are being developed, which will meet the requirements of the highest quality category, are laid when the engineering task is being made up. The institute's project plan includes only highly effective operations that are confirmed by technical and economic analysis and for which new, progressive technical solutions have been prepared. The institute has prepared for the 11th Five-Year Plan a large backlog of such solutions for urgent oil and gas industry problems. During 1980-1985 we should carry out, according to a comprehensive plan, a number of very important developments for new types of electrical equipment for installations for submersible electrical centrifugal pumps, for high-capacity gas-pumping units, and for offshore drilling.

However, the successful fulfillment of these tasks does not depend entirely upon the institute's collective. There are serious deficiencies in matters of introducing and, in particular, in manufacturing experimental models and of organizing series production. The institute at times manages only with great difficulty to get experimental models of new developments fabricated at plants that produce products in series. But even in this case they do not, as a rule, insure timely fabrication of the models.

The existing procedure calls for carrying out experimental development work only with the concurrence of the manufacturing plant, which cannot always be obtained. Often the periods for realizing scientific and technical achievements are drawn out so long for the reasons indicated that the innovation becomes obsolete and loses its value. Therefore, the problem of accelerating the introduction of developments stands on the agenda with full severity. In our view, appropriate revisions should be introduced for this purpose into the existing procedure for assimilating new equipment. /Ministries must answer for the timely realization and introduction of new, highly effective developments. In so doing, in order to raise the motivation of the enterprises' workers an appropriate system of incentives for mastering new equipment should be called for. The creation of specialized enterprises for realizing useful innovations and valuable inventions also would justify itself./

Since new engineering solutions that are carried out at the invention level lay the basis for important, highly economical developments, the system of examining and issuing patents must also be sharply improved. There are still serious deficiencies in this important state matter. Cases of lengthy correspondence and the adoption of incorrect decisions on applications for the issuance of patents on the part of examiners of sections of the All-Union Scientific-Research Institute of State Patent Examination (VNIIGPE) and of workers of the Central Council of the Committee for Inventions and Discoveries are frequent.

The elimination of this situation is of especially great significance also because the number of applications that arrive at VNIIGPE has grown substantially in recent years and the state suffers great damage from the loss of recognition of originality of intellectual property. With correct solution of these questions, scientific-research and experimental development organizations of the branch would be freed from spending excessive valuable time on overcoming difficulties that stand in the way of realizing developments and on conducting prolonged and, at times, fruitless correspondence about establishing the originality of useful technical innovations.

This would enable more rational use of creative scientific and technical personnel, and it would increase their output.

I therefore consider it necessary that Chapter III, "The Development of Science and the Acceleration of Technical Progress," supplement the words, "Raise the responsibility of ministries and agencies for the level of research in branch scientific institutions and for the most rapid use of the results of completed scientific developments in production," with this sentence: /"Simultaneously raise the responsibility of the All-Union Scientific-Research Institute of State Patent Examination (VNIIGPE) and of the Control Council of the State Committee under the USSR Council of Ministers for Inventions and Discoveries for the timely and correct solution of questions on the issuance of patents in accordance with applications."/

There are also deficiencies in the system of training science personnel and of awarding scientific degrees. A result of this is that at times there are no few people who work in scientific institutions who have science degrees but from whom there is no important output of any kind. /At the same time, many engineering specialists, even those without scientific degrees, make a great contribution to the arsenal of scientific and technical achievements for the national economy. Therefore, their contributions should be considered to a great extent in the awarding of scientific degrees./

The CPSU Central Committee's draft for the 26th party congress poses the task, together with that of increasing oil, gas and coal output during the 11th Five-Year Plan, of expanding the scale of use of renewable energy sources, particularly wind energy.

The traditional designs for wind motors are not suitable for creating high-powered wind-energy installations, so work in the area of researching and developing high-powered wind-driven electric-power stations of 1,000-5,000 kw should be intensified.

This problem acquires special urgency for our republic, including Baku and the whole Apsheron Peninsula, which are rich in wind energy. /Therefore, it is desirable that the "Main Directions" call for the organization and conduct on a large scale in Azerbaijan of the development and erection of experimental wind-driven electric-power stations, which would be able to serve as a basis for creating high-powered industrial installations of this type./

I think that the introduction of these additions into the CPSU Central Committee's draft would help to raise the effectiveness of scientific developments and the most rapid introduction of them into production. For its part, the AzNIETI collective will do everything necessary to insure that its developments will be on a par with the best models and that they will not lie idle so long on the tables of their creators, but, as the CPSU Central Committee's draft stipulates, will be introduced more quickly into production, thus defining the level and direction of technical progress in such important branches of the economy as the oil and gas industry.

11409
CSO: 1822

FUELS

INCREASED EFFORTS NEEDED TO MAINTAIN OIL OUTPUT

Kiev RADYANS'KA UKRAYINA in Ukrainian 21 Dec 80 p 2

[Article by V. Pylypiv, party group organizer and oil and gas administration organizer: "The Keys to Oil Formations"]

[Text] The Dolinskiy miners of mineral resources have been working successfully during the last year of the five year plan. Three thousand four hundred tons of petroleum and more than 6 million cubic meters of gas over the goal were shipped. Our team, headed by O. Batyuk, also entered quite a few additional products on their statement. I think that the collective of the petroleum administration has coped ahead of schedule with the implementation of the annual socialist pledges made in honor of the 26th CPSU Congress.

The success is considerable, however it is not giving rise to special satisfaction. Both among themselves at Party group meetings and at the election meetings of the administration's party organization, communists have noted with alarm the disappointing fact that the control figures of the 10th Five Year Plan for petroleum production are not being fulfilled. Clearly, it is beyond the fuel miners' powers to overcome the failure of the driller-explorers to find the key factor in this matter--new deposits. They have not given us even a fifth of the envisaged increase in petroleum during the five year plan. Research has not confirmed the expected productivity of the Spasskiy, Tanyavskiy and Northern Dolinskiy plutonic folds, and some of their fields have turned out to be without prospects.

The prospectors and exploiters of subterranean stores are faced with the task of stabilizing fuel and energy resources and completely supplying the national economy with them. This is stated in the plans for Basic Directions. The workers of the Dolinskiy petroleum industrial region have a certain contribution to make to this undertaking. The Dolinskiy formations are in the last stage of exploitation, and oil production at them is constantly decreasing. Working in two ways--expanding the zone of exploration for new formations and increasing fuel production by means of an entire system of geological and technical and other measures in existing fields--the Dolintsy are trying, if not to increase production in the coming year, then at least to lower the rate of its decline.

What are we, the exploiters of the depths, doing and what can we do? First of all, the Party organization of the administration is increasing the activity of all communists and non-Party people in using existing, and searching for new, reserves for stimulating production. We will test intensification of petroleum and gas production as a reserve, and such geological-technical measures as hydraulic fracturing of reservoirs, acid treatment of the bottom-hole zones of bore holes, injection of surfactants into them, treatment of the formations by the method of pulsed action on them and others will remain at our disposal in the future. During the first nine months of this year alone more than 100 such bore-hole operations have been conducted here. We succeeded in obtaining more than an additional 70,000 tons of oil and more than 7 million cubic meters of casing-head gas through them.

Today in order to maintain oil and gas production it is necessary to increase the operating stock of bore holes by close to 30 percent annually. And the interests of production require further expansion of the range of these geological-technical measures with simultaneous improvement of their technology and development of new methods.

Above all, I emphasize the necessity of wide use for this purpose of the quite effective technology for creating magnesium barriers in the flooded zones of formations. It was developed and successfully introduced several years ago by the scientists of Ivano-Frankovsk Institute of Oil and Gas. Obtaining an additional 2,000-3,000 tons of black gold from one such bore hole operation is very attractive. Unfortunately, during the past year the Ukrnafta Association earmarked little granular magnesium for these purposes. Now the situation is somewhat better. It is expected that the supply of this reagent will improve during the 11th Five Year Plan and start new streams of fuel flowing up to the surface.

We also expect new recommendations from our engineering-technical thought. The need for this is great. And much is being done. A search is being conducted in the administration for new methods of intensification which would open new reserves of more complete use of subterranean formations for us. The interesting engineering and technical development proposed by I. Flyunt, I. Pisots'kiy, B. Kostur, V. Predok and other experts has been recognized as an invention. As is well known, our oil is rich in paraffin. By precipitating in the pores of productive formations, it plugs them, reducing the inflow of oil into the bore hole. The new technology washes away this barrier and stimulates the flow of oil. This technology has already commended itself well at two fields and is now being introduced at a third which is rich in paraffin.

Not so long ago, in August, the problem of finding new productive fields and stabilizing fuel production in Dolinskiy petroleum industry region was discussed at a joint meeting of the party committees of our administration and the Administration of Drilling Operations. Scientists rate the outlooks for the presence of oil and gas in the region quite highly, and a wide program of research and exploration work has been planned. This year's research at experimental bore holes 1 (in Chechva) and 5 (in Rozhnyatov) gave rather optimistic results. An industrial flow of oil and gas was obtained. This inspires hope that in the coming year these fields will be completely explored and put into industrial development.

But this, obviously, is still a bird in the bush. And we should not shun even a small bird in the hand. In the opinion of both Party committees fuel production in the region could have been greater yesterday and today. It is question of the inadequacy of exploratory and operational drilling. Inasmuch as the wide program of research and exploratory work is still not very effective--a regular bird in the bush--the Ukrnafta Association should expand its operational drilling through a certain reduction of it. One or two operational bore holes a year is too few. But where can they be drilled? Previously explored fields with an output of some 10-15 tons have been considered not to merit attention for two decades. Isn't it time to to turn to them? Now, apparently, the association also understands this. It is desirable for the program for the coming year--18,000 meters of operational drilling--to become the landmark for the entire five year plan and we have put 5-6 bore holes into operation annually, even if they are not very productive.

The hidden oil of old reservoirs at old formations also requires a more attentive and efficient approach on our part. Several new bore holes drilled in the Dolinskiy and North Dolinkskiy formations have shown significant reserves for increasing oil production at the dense network of bore holes at static and depleted zones. Incidentally, recent experiments have also resulted in multilayer facilities at old, active formations giving a big yield by discovering how to take fuel not from all of them at once, as is done for the most part, but from each formation and from each level separately. It is planned to do so in future. Thus, yet another effective method of intensifying mineral production has been found. This is especially valuable now, when the demand for fuel and energy resources is constantly increasing.

9380
CSO: 1811

GREATER EXPLOITATION OF SMALL OIL DEPOSITS URGED

Kiev RADYANS'KA UKRAYINA in Ukrainian 14 Jan 81 p 2

[Article by O. Snars'kiy, doctor of geological-mineralogical science, professor and department director, Ivano-Frankovsk Institute of Oil and Gas: "Oil From Small Formations"]

[Text] Technical progress dictates the necessity of growth in power available per productive unit in any sphere of human activity. And it is no accident that the CPSU Central Committee plans for the 25th Party Congress provide for further growth of Soviet energy. During the last year of the five year plan alone, from 620-645 million tons of oil and gas condensate are to be mined. The annual increase in its supply from new bore holes should be as high as 35-40 million tons; this is threefold greater than the annual production of it in all the capitalist countries of Western Europe.

First of all, this will be achieved through the fields of Western Siberia, the Kazakh RSR and the European North of the country, accelerated mining of new fields and wide use of new methods of treating oil deposits. No less attention will be required by the old regions which, although they are in the late stages of exploitation, are all still giving the country up to one half of the annual production of black gold.

One such region is the oil fields of the Ukraine. Its resources are far from being completely studied. I see the republic's prospects in this respect as lying not only in the discovery of new promising fields and formations but also in the more complete use of the reserves of formations which are already being exploited. Practice shows that large formations are chiefly being used here now. Small formations, however are not only not being exploited, but they also have no share in the exploration process. Aren't our explorers and exploiters being too liberal? For formations which contain no less than 10-15 percent of oil and gas are essentially being eliminated from consideration.

Planning for the entire decade, however, creates the necessity of estimating oil and gas resources which are now not being used or which are being used inadequately. While previously an orientation toward gigantic and large deposits dominated, in order to ensure oil production until 1990 and later, in addition to these, it is also necessary to find and explore small deposits and also ones which lie at great depths and at offshores sites.

The scientists of our institute, especially the specialists of the department of industrial geology and geophysics, have set themselves the task of developing and introducing during the present five year plan methods for accurately determining the productivity of oil- and gas-bearing formations by the method of nuclear-physical investigations of bore holes. We feel that it is advisable to introduce an addition of the following kind in the section of the CPSU Central Committee plan which refers to the development of the petroleum extraction branch: "Employ measures for maintaining and increasing the level of production in old oil- and gas-bearing regions by putting new fields into, and involving small-depth formations in, exploitation."

Apparently, during the process of mining deposits, large reserves of fuel still remain in their depths. If the extraction of oil in this country were increased by only one percent, this would be equivalent to putting a large new bore hole into operation. Additional extraction of fuel is also being accomplished by wide use of so-called tertiary methods, including thermal methods. The thermal methods created by Ukrainian scientists for treating formations have been successfully tested at the fields of Borislavskiy Rayon in Lvovskaya Oblast and found wide application in Sakhalin, in Krasnodarskiy Kray and in other oil regions. Let us say that parathermal treatment of formations gives the Sakhalintsi more than 200,000 tons of additional oil annually, and the economic effect from using these methods is as high as R 5 million. In the Ukraine, with the exception of the Borislavtsi, they have gone no further than timid experiments.

At times the lack of appropriate equipment and chemical reagents slows down this work. This is why an addition should be made in the Basic Directions, where it mentions the necessity of expanding the use of new methods of treating oil formations, thus increasing the extraction of fuel from the depths: "Meet requirements for equipment and chemical reagents by expanding research on creating fundamentally new methods of increasing the use of oil reserves, in the scientific research institutes of the branch and in the VUZ's [Higher Educational Institutions].

The scientists of our institute also have their own contribution to make in solving the difficult problems of increasing the production of black gold and blue fuel and in stabilizing their production at deposits in a late stage of exploitation. The institute's ties with production are changing, and the effectiveness of scientific research is increasing. The yield of our explorations would be appreciably higher, however, if a comprehensive problem-solving laboratory for increasing the oil and gas output of formations were created at the young VUZ's of Transcarpathia. It would be desirable for the USSR State Committee on Science and Technology to listen to our proposals. This would promote more effective use of the scientific potential of the VUZ in solving national economic goals.

Another disturbing matter: the valuable scientific and technical developments of the VUZ's often do not produce the proper economic effect because of poor or slow introduction of them in production. The academic institutes, as a rule, do not have their own plants for manufacturing instruments and equipment for implementing developments in practice. In its third section the CPSU Central Committee plan provides for increasing the responsibility of the ministries and departments for the level of research in the branch scientific institutions and for the rapid introduction of their results in production. The matter would be even more advantageous if the ministries and departments also bore responsibility for introducing developments (I propose an addition): "of scientific institutions regardless of their departmental subordination." Thus, the VUZ's would be freed from functions extraneous to them and would conduct scientific and academic work more productively.

9380
CSO: 1811

ORDZHONIKIDZE WORKERS CALL FOR GREATER OIL OUTPUT

Baku VYSHKA in Russian 7 Dec 80 p 2

[Article by T. Mamedov, chief engineer NGDU "Ordzhonikidzeneft'," candidate of technical sciences: "Maximum Yield From Every Well"]

[Text] The CPSU Central Committee draft for the 26th Party Congress "Basic directions in the economic and social development of the USSR for the years 1981-1985, and the period up to 1990" envisages the expanded use of new extraction techniques on oil-bearing strata, thereby increasing oil recovery.

This party directive is particularly important for us, the Apsheron oilmen, where the deposits are in the last stages of development and it is not possible to increase output using existing techniques.

As an example we would like to mention the Surakhan fields which have been exploited for more than 70 years. The NGDU "Ordzhonikidzeneft'" collective currently works these fields. Many of the strata there have a complex geological composition characterized by a large number of tectonic faults. So, traditional methods of extraction using air or water have little effect and sometimes even act negatively on the productivity of the well. For example, the injection of air into the strata to maintain pressure cools the strata, clogging its pores with resinous and paraffinic compounds present in the oil.

In order to prevent similar phenomena our collective was forced to search for new recovery methods for use in our oil fields. Our research produced a method, the first in the country, based on a hydrocarbon substance which we call microfoam solution. Injection of this solution into the ground significantly enhanced the productivity of the wells. This solution consists of a mixture of several chemical reagents with a sulfanol based foam.

The new method was tested in October 1976. It was applied to five wells and within a month, by November, it resulted in the average oil yield increasing by 70 tons. The total additional annual yield was 1,655 tons. This method reduced the use of water by nearly a third and reduced the intake of sand, thus increasing the productivity period of the well between repairs. For example, the number of production days between repairs on well No 994 was 21, but after the injection of the microfoam solution, it increased to 75 days.

Currently we are using the microfoam solution in eleven active fields and in a fifth of all the active wells of the NGDU. This has resulted in nearly 47,000 tons of additional oil; of this, 13,000 tons were produced this year.

It is important to add that in the Surakhan-Karachukhur deposits the injection of this hydrocarbon based substance made possible subterranean burns in the sulfur containing rock which permitted the recovery of additional hundreds of tons of fuel. By way of comparison the use of water injection by NGDU produced only 5,000 tons of oil this year.

The above clearly indicates that the new method for increasing the oil yield will enable us to intensify production. /Therefore the NGDU collective is resolved to begin using the microfoam solution in all its wells during the 11th five year plan. According to our projections for the Surakhan deposits, it will be possible to obtain an additional 600,000 tons of oil. This is no small figure./[in boldface]

To achieve these figures will not be an easy task. All aspects of the behavior of this microfoam solution in deep wells at the high reservoir pressures that are wide spread in the NGDU must still be investigated. The extensive use of this method requires that the necessary amounts of compressed air can be supplied by the compressors available at NGDU. The daily requirements for this method are currently 50-70,000 cubic meters, but in the future at least 300,000 cubic meters will be needed. In case of a shortage of reagents, plans have been made to switch as many pressurized wells as possible over to submersible electric pumps.

It would be erroneous to assume that by the adoption of one or several different new methods the NGDU collective can solve the problem of yield stabilization which is the aim of the oil drillers of Azerbaijan as stressed by the "Basic Directives." Improved efficiency in geological technical procedures remains an extremely important problem. In spite of an average of 4 to 5 improvement measures per well during the tenth five-year plan, the growth in average yield declined according to NGDU.

Our task is to identify those effective geological technical procedures which will ensure the best yields, after careful and detailed analysis of all available procedures. Especially promising is the widespread introduction of vibroshock treatment of the critical zone of wells which contain a large amount of resinous substances and paraffins.

Each year a large amount of oil is lost due to salt deposits in the pipes and the corrosion of underground equipment. In this harsh environment the equipment quickly reaches the end of its useful life, placing a heavy burden on production costs and requiring additional consumption of metal.

The workers of "Ordzhonikidzeneft'" have accumulated a lot of experience in battling corrosion of underground equipment using inhibitors. Unfortunately, the extent of their work is limited due to a lack of chemical reagents. /Therefore it is felt that it would be useful to propose in the "Basic Directives," that the chemical manufacturers increase the supply of corrosion inhibitors, chemical solvents and other substances needed by the petroleum industry. We consider the use of chemicals in oil production to be one of the main factors for the increased extraction of oil from oil-bearing strata and higher yields from the wells./[in boldface]

The workers of "Ordzhonikidzeneft'" have greatly expanded socialist competition for the great meeting of the 26th Congress of the CPSU. Currently, remarkable results in oil and gas production are being achieved by the brigades led by masters Z. Fataliev, S. Shikhlarov, E. Aleksanyan. Following the example of the brigade led by master Aliyulla Nasirov, they are achieving maximum output from each well by skillful and thoughtful work.

The grandiose program outlined by the party for the economic and social development of the country inspires the Surakhan oil workers to an aggressive effort and calls on them to contribute their share to the strengthening of the power of the Motherland.

9680
CSO: 1822

REPUBLIC MEETING DEALS WITH GREATER OIL OUTPUT

Baku VYSHKA in Russian 11 Dec 80 p 3

[AZERINFORM article: "Let Us Raise the Oil Production Efficiency in Azerbaijan"]

[Text] The Azerbaijan party economics group discussed the problems of increased efficiency in the republic's petroleum and gas industry at a meeting held at the S.M. Kirov state house for political enlightenment on 10 December.

The presidium consisted of the following members: Candidate for membership in the politbureau of the CPSU Central Committee and First Secretary of the Azerbaijan CP Central Committee--G. A. Aliev; Deputy Chairman of the Council of Ministers of the USSR, Chairman of the Gosplan [economic planning] of the USSR--N. K. Baibakov; Chairman of the Council of Ministers of the Azerbaijan SSR--A. I. Ibragimov; Secretary of the Central Committee of the Azerbaijan CP--G. N. Sendov; First Secretary of the Baku City Party Committee--A. G. Kerimov; Deputy Chairman of the Council of Ministers of the Azerbaijan SSR, Chairman of the Gosplan of the Republic--S. K. Abbasaliev; First Deputy Minister of the Gas Industry--Yu. V. Zaitsev.

Comrade N. K. Baibakov spoke at the meeting.

He reported on the preliminary results of the fulfillment of the 10th five-year plan and discussed in detail the objectives stressed in the draft report of the Central Committee of the CPSU "Basic directives for economic and social development of the USSR for the years 1981-1985, and the period up to 1990." As Comrade Baibakov pointed out, this important document contains a summary of the work of the Party and the Soviet people in the 10th five-year plan, the enormous successes in economic development and achieving the main objective of the CPSU and the Soviet state: the general improvement in the living standard of the workers.

According to N. K. Baibakov, one of the most important problems to be solved in the upcoming five-year plan is the further development of a fuel-energy complex in the country, and the rational utilization of the country's natural resources.

The attention of the speaker was primarily focused on problems associated with increasing the efficiency of the petroleum and gas industries in Azerbaijan. Besides exploring new fuel reserves both on land and on the continental shelf, existing deposits should be more fully utilized in the national economy and, more importantly, a greater effort should be made to increase the yield of fuel contained in these deposits and to make wider use of new recovery methods.

N. K. Baibakov proclaimed: Your republic flourishes and, to quote comrade L. I. Brezhnev, Azerbaijan walks tall! We are proud of the remarkable accomplishments of the people of Azerbaijan. These were achieved through the enormous effort of the Central Committee of the Azerbaijan CP and dedication of G. A. Aliev. They devoted constant attention to the development of all branches of the national economy. Therefore the petroleum workers of the republic must remain true to their former glory and should take a big step forward in the area of scientific and technological progress. The specialists, engineers and all the other workers of this traditional sector of industry in the republic have all the means at their disposal not only to stabilize fuel production but also to ensure its growth.

For this reason, a maximum effort should be made to speed up the introduction of progressive methods for treating the deposits thus increasing the recovery of residual fuel. For this, the oil workers of the republic have at their disposal numerous resources, so far untapped, such as the use of intracontour flooding, surfactants and thermal methods. The mining method of oil extraction, which is used in our country, is only gradually gaining acceptance in the republic, primarily because of the lack of necessary organization and responsibility on the part of those comrades to whom this important task has been entrusted. It is not right to ignore an effective process like working oil deposits by the open-cut method.

The time has come when it is essential to develop an extensive program for the use of secondary and tertiary methods for extracting oil in the republic, for the maximum exploitation of the rich deposits of Azerbaijan. The development and fulfillment of this program requires the active participation of scientists, chemists, machinists and representatives of other sectors of the economy, in addition to the oil workers.

I would like for the Azerbaijan oil workers to speak out again with a full voice and to be in the forefront of the battle for an intensified effort in this important segment of the national industry, said comrade Baibakov in conclusion. You have all the possibilities, a wonderful basis, excellent cadres and remarkable traditions that promise that the miners of "black gold" in Azerbaijan will celebrate great successes in fulfilling the plans outlined by the party for the next five year plan.

Comrade G. A. Aliev, in his speech at the meeting, emphasized the need for great effort in order to successfully achieve the great and responsible tasks facing the oil workers of the republic in the 11th five year plan. The Central Committee of the Azerbaijan CP intends to adopt a special decree outlining the complex measures needed for the future intensification of oil production.

Comrade N. K. Baibakov submitted important recommendations and advice on the problems of oil recovery from the deposits in Azerbaijan. All organizations involved directly or indirectly in oil production must, in accordance with todays proposals, prepare a list of measures they intend to take and submit these to the Central Committee of the Azerbaijan CP. They should contain concrete, practical proposals for the extensive use of secondary and tertiary methods of oil recovery, and for their application in the oil fields. This is the most reliable way to insure an increased oil production efficiency in Azerbaijan.

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REPORT ON MEETING CONCERNING FUTURE OF SHALE

Tallinn SOVETSKAYA ESTONIYA in Russian 14 Jan 81 p 1, 3

[Article based on report of the participants in a meeting in Narva on 13 January 1981: "The Future of the Estonian Fuel and Power Industry"]

[Text] The problems of developing the fuel and power industry of the Estonian SSR, as in past years, is today connected with the comprehensive use of oil shale - Estonia's main fuel wealth - and with measures to increase the reliability of equipment, which significantly increases the economy of shale-based electric power stations (the production cost of electric power at the Pribaltiyskaya and Estonskaya State Regional Electric Power Stations is among the lowest in the Combined Power System of the Nortwest USSR) and with preventing the pollution of the atmosphere by shale wastes.

While the basic load is gradually being switched to nuclear electric power stations, the shale-based electric power stations of Estonia must be transferred to a maneuverable mode of operation, which requires the creation of new equipment and also a search for and rapid adoption of new technology. Scientists are successfuly solving tasks for the development of such progressive methods as the burning of shale in vortical furnaces and in furnaces with a boiling layer.

As the result of scientific research in the field of fuel and power engineering the scientists have proposed a program for developing power equipment and have provided a forecast for energy consumption in the Estonian SSR until the end of the century. They have developed theoretical aspects for optimizing the area's fuel and power industry, which were used in determining the basic trends of Estonia's national economy for the Eleventh Five-Year Plan.

All of these matters were discussed on 13 January at the scientific-practical conference "Basic trends for the development of the fuel and power complex of the Estonian SSR", which was devoted to the 26th Party Congress. The meeting was held at the Estonskaya State Regional Electric Power Station imeni 50 Years of the USSR. The meeting was opened by the president of the Estonian SSR Academy of Sciences, Academician

K. Rebane. Academician I. Epik, vice president of the Estonian Academy of Sciences, gave a report entitled "Scientific problems of the development of the fuel and power complex of the Estonian SSR". The meeting participants heard other reports from the chief of Estonglavenergo, E. Aman, the chairman of the Program Council of the Estonian comprehensive program "Comprehensive use of shales", corresponding member of the Estonian SSR Academy of Sciences, A. Aarn, the deputy director of the Scientific Production Association TsKTI imeni I. I. Polzunov, doctor of technical sciences V. Mitor, and other leading scientists and specialists in the field of fuel and power engineering.

The Minister of Higher and Middle Special Education of the Estonian SSR, I. Nuut, the first secretary of the Kokhtla-Yarveskiy City Party Committee, Ye. Filatov, and the second secretary of the Narva City Party Committee, N. Korotkov, participated in the meeting.

The meeting participants were shown around the Estonskaya State Regional Electric Power Station imeni 50 Years of the USSR.

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FUELS

INCREASE SHALE EXTRACTION IN ESTONIA

Tallinn SOVETSKAYA ESTONIYA in Russian 14 Jan 81 p 2

[Article by Yu. Tambet, general director of the Production Association "Estonslanets" (Estonian Shale): "Raising the Efficiency of Extracting Shale"]

[Text] According to the annual computation, the Production Association Estonslanets extracted 31.3 million tons in 1980, surpassing by 2.8 million tons the extraction level called for by the five-year plan. Eleven and half million tons of shale were extracted in excess of the plan, which meets the annual requirement for fuel of such large electric power stations as the Pribaltiyskaya and Estonskaya state regional power stations combined.

The growth was achieved primarily by increasing extraction at the two newest enterprises, the "Estonia" mine and the "Oktyabr'skiy" open pit mine. The collectives of other mines and open pit mines also worked very dilgently.

Of the most important sites that were put into operation during the Tenth Five-Year Plan, we should point out the capacities for shale extraction at the "Okyabrskiy" and "Sirgala" open pit mines. The latter produces 3.5 million tons per year while the enrichment factory of the Oktyabr'skiy open pit mine produces 5 million tons of shale per year.

The technical reoutfitting of the facility continued and the technical and economic indicators of the association's work improved.

As the result of implementing all technical and organizational measures the labor productivity of a worker for shale extraction grew by 12 percent during the five-year plan. On the average labor productivity is 25 percent greater than it was in the Ninth Five-Year Plan.

As the result of mechanizing manual labor more than 500 men were freed to do other work; however, the percentage of manual labor is still high - more than 30 percent. The elimination of much manual labor is being delayed due to inadequate production by industry of the means for small mechanization. For example, not one Soviet enterprise is manufacturing impact wrenches for anchor supports, special machines for drilling hanging walls, and other such needed equipment.

The unselfish labor of the miners made it possible to achieve a high efficiency of the powerful shale extraction equipment.

The Challenge Red Banner of the All-union Socialist Competition of the USSR Ministry of the Coal Industry has been in the hands of our miners since 1975. The association has repeatedly won the Challenge Red Banner of the CPSU Central Committee, the USSR Council of Ministers, the All-Union Central Trade Union Council and the Central Committee of the All-Union Leninist Communist Youth League. The association has also been placed on the All-Union Honor Roll at the USSR Exhibition of Economic Achievements and has won other awards.

It is necessary to take note of the significant, by 14 percent, growth in the average 24-hour loading on the working face. All 43 working brigades are extracting every 24 hours more than 1,000 tons of shale. Nine brigades are working with an annual loading of more than 500,000 tons of run-of-mine shale, which for marketable shale equates to more than 1,300 tons every 24 hours. The number of high-speed cutting brigades has increased from 12 to 25, i.e. almost 50 percent of the total number of such brigades.

Now on the eve of the 26th CPSU Congress, the miners are actively participating in the discussion of the Party's grandiose plans aimed at the further development of the Soviet Union. I would like to briefly outline some of the problems bothering the collective of the association.

Our sector of the economy is most closely aligned with the fuel and power industries, for 80 percent of shale extraction is used to produce electrical and thermal energy. The shale extracting industry has always done everything it could to support the rapidly growing needs of the fuel and power industries for fuel. The shale extracting enterprises in recent years has been receiving raw materials primarily from the enrichment factories. A powerful shale extraction production base has been created, the reliability of which cannot be doubted. Estimates show the need to develop extraction in the future. The use of oil shales is one way to improve the structure of using the resources of the fuel used in the fuel and power industry and to reduce the percentage of petroleum and petroleum products that are used in this industry.

We know, however, that it takes at least 15 years to design, put into operation and assimilate the planned capacity of the large mines. Some presently active mines may be closed during this time after exhausting shale supplies. In the years 1990 to 1995 the "Kokhtla", "Tammiku" mines and the "Vivikond" open pit mine will be shut down for this reason. The total capacity of these mines is nearly 6.5 million tons of shale.

This means that to prevent a sharp fall in shale extraction in the 1990s it is necessary to begin designing and building shale extraction enterprises now. In connection with the total displacment of the front of mining operations in a southern direction, where there are still many unused seams of shale, it is advisable to build a mine near Kuremyae and to build a railroad branch for transporting the shale. In addition, the "Sirgala" open pit mine needs a new receiving and crushing complex that is located closer to the basic faces; the old complex is now too far away.

The modernization of the "Viru" mine, the receiving of new, large stripping excavators, modern trucks and tractors, and especially the expansion of our repair-machine plant - the only manufacturer of many kinds of equipment needed by the association - all of these things would be a substantial contribution to enhancing the efficiency of production.

The requirements of the Draft of the CPSU Central Committee to more comprehensively assimilate mineral deposits and to not tolerate losses of minerals during extraction have a direct bearing upon the extraction of shale. However, shale losses are high - more than 30 percent. As a solution we see the possibility of developing a technology for the combine removal of shale to the complete capacity of the seam using mechanized equipment. Shale losses must then be lowered to 10 - 12 percent. Equipment with the needed parameters is already being manufactured, but there is scarcely enough to meet the needs of the coal industry. To obtain them we are counting on the growth of the production capacities of the coal machine building, outlined in the Draft of the CPSU Central Committee for the 26th Party Congress.

A crucial question concerns the disparity of the calorie content of the shale extracted from new mines with the recently established GOST /state standard/. High calorie deposits in the center of the shale basin are nearly exhausted. While moving gradually to the south and southeast, we are forced to increase the depth of the mines (simultaneously increasing steps to prevent the seepage of ground water). However, the shale that is extracted there is somewhat worse in its natural properties. To enrich it with a mixture of higher-calorie shales is expensive, although in some instances we are doing this. As a way out of this situation we suggest that the GOST requirements be changed in regard to the calorie content of fuel; otherwise, the assimilation of the southern seams will have to be ended. We will be unable to extract other shale from this area now.

Considering the substantial role of shale fuel and power usage in the Estonian SSR, the rapid development of the shale extracting and shale chemical industry, it is necessary to proportionately develop their raw material base as well. For this reason, I recommend the the draft of the Basic Trends at the start of the first paragraph of section 10, concerning the Estonian SSR, include the word "shale extracting". The complete paragraph should read like this:

"The Estonian SSR should increase the production of industrial product by 14 to 17 percent, and rapidly develop the shale-chemical, shale extracting, electronic, instrument building and electrical equipment industries."

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FUELS

SHURTAN GAS FIELD NOW FUELING MAJOR UZBEK POWER PLANT

Tashkent PRAVDA VOSTOKA in Russian 1 Jan 81 p 2

[Interview with A. R. Atadzhanov, chief of the All-Union Industrial Association Soyuzuzbekgazprom, and V. R. Klement'yev, deputy minister of Power and Electrification of the Uzbek SSR, by F. Ovechkin: "The Pride of the Republic"]

> [Text] On 13 December last year the country's newspapers published Leonid Il'yich Brezhnev's greeting to participants in the construction and introduction into operation of the first phase of the Shurtan complex for recovering and transporting gas. This important stage of the major construction project was completed with a festive finale. It can be said without exaggerating that the complex born at the end of the 10th Five-Year Plan has by right become its pride.
>
> PRAVDA VOSTOKA has systematically reported to readers on work progress at the shockwork construction project. Therefore, on this holiday it is especially pleasant for us to return to the Shurtan topic. We have asked Soyuzuzbekgazprom [All-Union Association of the Uzbek SSR Ministry of Gas Industry] Chief A. R. Atadzhanov and Deputy Minister of Power and Electrification of the Uzbek SSR V. R. Klement'yev to tell about it.

A. R. Atadzhanov: "On 5 November 1980, precisely on the date contemplated by the commitments, Shurtan gas was sent to the Syrdar'inskaya GRES. On that day the new complex commenced operation. All the construction and installing collectives that had been involved in the work proved their worth in a most positive manner. As a result, the complex was erected in practically a year instead of the 20 months stated in the standards.

"The sources of this success were primarily geologists of the republic's Ministry of Geology, scientists of SredazNIIgaz [Central Asian Scientific-Research Institute of the Gas Industry] and designers of Uzgiprogaz [Uzbek State Institute for the Design of Gas Industry Enterprises and VNIPIgazdobycha [All-Union Scientific-Research and Design Institute for Gas Recovery]. Thanks to their ability and industriousness, the most progressive industrial solutions have now been incorporated in the new complex.

"The Sredazneftegazstroy [Trust for the Construction of Oil and Gas Industry Enterprises in Central Asia] collective made a great contribution to the victory. The first to complete its own 200-km segment, it came to the aid of its neighbors and laid another 50 km of gas pipeline above the goal. It was a worthy example of mutual support, of intimate interest in the most rapid completion of the operations.

"Uzbekburgaz [Uzbek Gas-Drilling Administration] subunits won honor and glory for themselves at Shurtan. Having concentrated material, technical and manpower resources to the maximum, they managed in a short time to drill 12 holes, 10 of which are producing gas. Anomalously high formation pressures, great depth of deposition of the gas, which reached 3,200 meters, and great distance from the base complicated the work. But they coped with the job with their own people.

"The builders of Bukharagazpromstroy [Bukhara Trust for the Construction of Gas Industry Enterprises] and Mubarekgazpromstroy [Mubarek Trust for the Construction of Gas Industry Enterprises] and the many other installing organizations that were employed at the construction project deserve kind words.

"The gas field, which has a capacity of 4 billion cubic meters of gas per year, and the 400-km gas pipeline that joins the field with the Syrdar'inskaya GRES were built by their common labor and are operating successfully.

"However, the work did not stop with this. The amount of gas recovered and treated at the field will be quadrupled in the near future. We have developed a design according to which recovery at the Shurtan field will grow to 16 billion cubic meters of gas per year. Not only the Syrdar'inskaya GRES but also the Talimardzhanskaya GRES will operate on it. Moreover, the erection of a treatment plant with a capacity of 12 billion cubic meters of gas per year and of plants for making ethane and for producing propane-butane will begin soon at Shurtan. Shurtan will have a still greater future. Soon it will become the largest power-engineering source for the republic. It has been estimated that by 1990 each third cubic meter of Uzbekistan's gas will come from Shurtan."

V. R. Klementy'yev: "In order to conceive the enormous significance that the new complex has for Uzbekistan's power engineering, it is best of all to use numbers. The Syrdar'inskaya GRES, the largest in Central Asia, was designed to be a gas-fueled power station. However, because of partial depletion of the Gazli field, we were compelled to convert the GRES to mazut. The station has been chronically short of this fuel. For its fireboxes should burn more than 10,000 tons of mazut daily, requiring four or five trainlaods. Trainloads of it came from Omsk, Bratsk, Krasnovodsk and tens of other cities. But even so, the station was feverish. Because of the fuel shortage, the equipment's utilization factor did not exceed 50 percent.

"But now Shurtan gas has come. The abundance of fuel has for the first time enabled the station to raise electrical generation to 50 million kw-hr per day. Today, half of the GRES's power units have been converted to gas. This means that the station has begun to consume about three trainloads less of mazut per day.

"A ton of mazut costs 25 rubles, but an equivalent amount of gas costs only 11 rubles. The station now is saving 112,000 rubles per day, based upon the difference in these prices. This year savings will be 40.8 million rubles.

"Gas is more suitable than mazut, and the time between preventive repairs of the equipment that operates on the 'blue fuel' has been extended. Gas technology enables the station's staff to be reduced by about 10 percent, releasing 120-130 people for other work. Sanitation and hygiene have been greatly improved. All this will enable the enterprise to save additional hundreds of thousands of rubles. As a natural result, the prime cost of Syrdar'inskaya GRES electricity will necessarily be reduced. While it is now 0.7 kopecks per kw-hr, with conversion to gas it will be reduced to 0.5 kopecks. Let us note that the average prime cost for the industry is much higher. This means that Shurtan gas will enable much more electricity to be produced at less cost. And this is the main significance here."

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BULLA-DASHGID GAS, CONDENSATE PIPELINE FINISHED

Baku BAKINSKIY RABOCHIY in Russian 9 Jan 81 p 1

[Article by AZERINFORM [Azerbaijan SSR Information Agency] correspondent A. Gol'denberg: "The Pipeline Goes into Operation"]

> [Text] Increase gas-condensate recovery and provide for more complete use of it.

The new steel arterial that SMU-1 [Construction and Installing Administration No 1], SMU-2 and SMU-3 collectives of Kaspmorneftegazstroy has turned over for operation will solve two important problems. It will insure that Azerbaijan's gas-treatment plants will get a continuous supply of gas condensate, which previously was shipped, sometimes with interruptions, in tank cars from other parts of the country, and it will enable more rhythmic operation of the group of high-flow rate wells that have been drilled at the Bulla Sea fields, where this condensate is recovered.

The recovery of gas and condensate in this area of the Caspian, despite the complicated conditions for penetration and operation of the existing well inventory, is growing rapidly. Each well drilled near Bulla Island produces from depths of 5-6 km an average of 250 tons of condensate and hundreds of thousands of cubic meters of gas per day. Right now another 10 well bores are being driven here to the fuel storehouse that has been discovered. It is expected that by the end of the year the recovery of this valuable hydrocarbon material will grow by almost one-third here.

The pipeline transport that provides for shipment of fuel to the mainland has now been augmented by the high-capacity product pipeline. It was welded from the largest pipe in the Caspian, 426 mm in diameter. This will enable substantially more gas and gas condensate to be delivered at the same line pressure.

The product pipeline is coated over its entire length with a concrete jacket, which provides a stable situation for it on the sea bottom.

This steel line, 36.5 km long, will deliver gas and condensate to the terminal structures at Dashgid. Here they will be separated and the condensate will go over a 48-km pipeline to a gas-treatment plant, where the republic's chemical industry enterprises will use valuable components obtained from it to make products.

Having joined in the socialist competition for a worthy greeting for the 26th CPSU Congress, the builders of the product pipeline and the condensate pipeline have shown themselves to be models of highly productive labor. During the underwater operations they used the full capacity of the specialized pipelaying ship "Suleyman Vezirov," on which pipes are welded into lengths and their joints inspected by X-ray facilities, the crane ships "Useyn Rakhmanov" and "Nel'son Stepanyan," and other modern equipment. Having overcome the resistance of the elements, with storms and hurricanes now and then breaking down on them, the Caspian's sappers completed all the work ahead of time. Having put the arterial into operation, they carried out with honor the commitment adopted in honor of the forthcoming 26th party congress.

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CSO: 1822

POOR PLANNING ENDANGERS COAL OUTPUT IN UKRAINE

Kiev RADYANS'KA UKRAYINA in Ukrainian 6 Jan 81 p 2

[Article by V. Poturayev, academician of the AN UkSSR [UkSSR Academy of Science] director of the AN UkSSR Institute of Geotechnical Mechanics, head of the Dnepropetrovsk Science Center of the AN UkSSR: "Difficult Seams"]

[Text] The mining of the Donets Basin coal beds is "descending" deeper and deeper into the depths of the earth. This is a completely natural phenomenon. For in our country it is hard to find a mining field which could compare with the Donets Basin for its "work record."

There is also another objective law: the deeper the mining, the more complicated it is to perform, the harder it is to get the coal out. And it is no coincidence that during the last year the basin's coal conveyer operated with appreciable standstills.

Indisputably, complication of coal mining conditions is a natural and normal phenomenon. But it could have been foreseen, and once it had been foreseen, appropriate preparations could have been made. Unfortunately, in analyzing the situation, which has developed today in the coal fields, one arrives at the conclusion that adequate preparation was not made for work under the new, greatly complicated mining and geological conditions of the branch.

Especially alarming today is the fact that the process of the complication of mining production associated with deepening mines is proceeding more rapidly than the process of creating and introducing new technology and technical facilities for coal production which would take into consideration the difficult mining and geological conditions. This is the legacy of inadequate attention not only to the development of the mines themselves but also to branch science.

What specifically is this role? What are the main goals of science in the development of the branch, and how are they being fulfilled today? Let us try briefly, as far as the dimensions of a newspaper article permit, to dwell on these questions. Let us talk especially about such phenomena as sudden bursts of coal, rock and gas in the mines and the high temperature of mining rock. Practice shows that they can be attributed to basic factors which stimulate the rate of coal production at the mines of the Donets Basin.

Careful and attentive study of the mountain mass of deep mines made it possible to represent it as a complex, fractured, porous, gas-bearing bore hole and describe the phenomenon of bursts at all its stages--from formation to extinction--as a single system. Numerous experiments under laboratory and then under natural conditions and also theoretical calculations provided an opportunity to develop and test in practice new technology and technical methods of predicting and preventing sudden bursts. The introduction of some of them during the present five year plan made it possible to reduce signficantly the number of sudden bursts not only of rocks but also of coal and gas. Here it must not be forgotten that this was achieved, despite the fact that the number of mining seams where there is a danger of bursts increased nearly threefold during the last decade.

Control of sudden bursts could be even more successful if, on one hand the innovations proposed by science detected the shortest way to the face, and on the other, stringent control of observance of anti-burst measures were exercised at all mines. At the end of the past year in accordance with the plan developed for regional treatment of coal beds where there is a danger of bursts by degassing and dampening them should have been introduced in 56 long walls of the basin but were used in only 5 long walls.

To this it should be added that from year to year the machine-building plants which operate for the coal industry have not been complying with the deadlines for production and delivery of equipment for the work at seams where there is a danger of bursts. In this connection we propose adding to the section of the CPSU Central Committee plan which refers to the development of the coal industry a specification such as this: "Accelerate the development and mastery of serial production of highly productive equipment systems for producing coal under complex mining and geological conditions and conducting preliminary manufacture; expand the production of effective technical methods for predicting sudden bursts and mass introduction of technological systems for definite introduction of extraction and preliminary work at coal seams."

Another no less complex and important problem is the creation of normal temperature conditions in mining shafts of deep mines. Judge for yourselves: today more than 20 percent of Donets coal is being mined from the depths exceeding 800 meters. And this problem is becoming more acute with time. For in accordance with the general plan for development of the basin up to 1990, at most reconstructed and newly built mines the coal seams will be worked at depths of 1200-1600 meters. The temperature of the rock at such depths will be more than 50 degrees Celsius, and the temperature of the ventilating air--up to 45 degrees Celsius. Of course, it is becoming impossible to mine coal from such depths without creating normal temperature conditions.

It should not be forgotten that the problem of cooling mine air also has an important economic aspect. And here is why. The electric energy consumption of air conditioning in a mine at a depth of close to a kilometer is as high as 30-40 million kilowatt-hours. What is more, the air conditioning systems at coal enterprises are highly specific. The distance between the cooling machines and the faces may be as much as three or more kilometers. In short, the scientists face a wide field of complex research.

True, something has already been done. It must be admitted, however that scientific developments in this direction are not being conducted too actively today.

We have dwelt on two (true, unusually important) factors that are recognized as the present day as well as the future of the republic's coal industry. To them should be added problems associated with the necessity of exploiting at great depths small-capacity high-methane-bearing coal seams at considerable increases in mine pressure and also the problems of subterranean transport, hoisting and flooding... Of course, these problems cannot be solved without the participation of science. Considering their extent and acuteness, the UkSSR AN [Academy of Sciences] Presidium has developed a comprehensive plan for conducting research relating to the requirements of the republic's coal industry. This plan is becoming an integral part of the republic's special Energokompleks program. I note that 24 academic institutes and a number of the VUZ's of the republic have been enlisted for its implementation.

Unfortunately, it must be said that, as surprising as this may be, the science of the branch is tackling these problems most unwillingly. I have already emphasized that the republic's coal industry has set to work under the complicated conditions of coal production practically unprepared. And even today the scientific subdivisions of the UkSSR Ministry of the Coal Industry are not oriented toward solving big and challenging problems. Here is a concrete example. The Donets Coal Institute which is the leading scientific institution of the basin, is not planning studies which would concern the above mentioned problems during the 11th Five Year Plan. The directors of this institute are trying with all their might to turn away such studies and transfer them to the shoulders of academic and VUZ science. In this way the academic institute and VUZ--branch scientific institution--production chain is broken. It is broken because without active collaboration with us by the scientists of the branch, without their authoritative opinion with respect to a given mine, rapid and effective use of it in practice cannot be expected.

We feel that the basin institute should become the center of scientific research conducted in the interests of the branch. It should be not merely the initiator, but also the organizer, of studies aimed at correcting situations related to complications of mining and geological conditions at the Donets Basin mines.

But what of the UkSSR Ministry of the Coal Industry, within whose jurisdiction the Basin Institute lies? What is its position? It is obvious from everything that the Republic's Ministry of the Coal Industry has not shown itself active on this issue and is not hastening to influence its scientific institution. Last year, when the directors of the ministry turned to the UkSSR AN Presidium with the proposal of forming close ties between the academy and the branch, they made many promises and gave many assurances with respect to cooperation with any of the scientists' initiatives and developments. Unfortunately, the ministry's appreciable and concrete attention to this question is not being felt.

I also think that the UkSSR should devote considerably more attention to scientific research of a promising nature, especially studies of nontraditional devices and methods for extracting coal. It is a question not only of mining fuel without the presence of people but also of goals that are considerably closer in time--finding techniques for putting coal in a mobile state under the conditions of active mines and ensuring the control and management of collapsed seams and the delivery of fuel to the surface. In our opinion, the "Basic Directions for Economic and Social Development of the USSR for 1981-1985 and for the Period Up To 1990" raises in a very timely manner the issues of the creation and introduction of automated devices for extracting coal at the mines without the constant presence of people at the working faces. To this I would add: "Increase the attention of the USSR Ministry of the Coal Industry, UkSSR Ministry of the Coal Industry and their scientific institutions to the creation and wide introduction of new and nontraditional technology and technical devices for coal production under complex mining conditions."

No one disputes it: mining Donets coal is becoming increasingly difficult. This, we are convinced, is a matter not only of gradual deepening of coal mines but also of how the solution of the problems on the surface of the earth associated with this phenomenon is approached.

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CSO: 1811

BETTER WAYS TO USE OR DISPOSE OF MINE WASTE URGED

Tallinn SOVETSKAYA ESTONIYA in Russian 19 Dec 80 p 2

[Article by E. Parakhonskiy, chief process engineer for Nature Conservation of Estonslanets [Estonian Shale Production Association] and candidate of engineering sciences]: "Use Natural Riches in Integrated Fashion"; passages enclosed in slantlines printed in boldface]

[Text] A feature of our country's economic development in the modern era is the conversion from extensive to intensive ways of developing the economy. This explains in particular the statements in the "Main Directions" about intensifying the mining and primary processing of useful minerals with a view to increasing the amount of the final product obtained when excavating deposits, at less cost in living labor.

The all-around development of the integrated use of deposits and of tailings from mining production and the reduction of losses of useful minerals, both in the ground and during processing, are included among such trends.

Today the extent of use of associated rocks taken from the ground during the mining of coal, shale and ores is not great; it does not exceed 5-10 percent. In other words, there is unintegrated use of mineral resources, which affects adversely the natural environment: areas for agricultural land and forests are reduced, and water sources and the atmosphere are polluted. For the country as a whole, about 5 billion tons of overburden are removed each year, and concentrating plants yield 700 million tons of tailings. About a million hectares of land are taken up today in the storage of tailings.

The same situation is also created during the excavation of Estonia's deposits of mineral shale, where, out of the more than 30 million cubic meters of overburden and surrounding limestone rock that is brought to the surface, no more than 1-2 percent is used in the national economy, and, of the 230-260 million cubic meters of water pumped from mine excavations, only 2-3 percent is so used.

The existing practice in the use of mineral resources leads to a reduction in the effectiveness of mining enterprise operation because of overexpenditure of funds on additional capital construction, for superfluous transport costs, and so on. At the same time, according to specialists' calculations, the amount of mining products in the country could be increased by 25-30 percent with the wide use of the associated rock that is brought to the surface.

The Estonslanets production association has gained valuable experience in a large number of areas in making rational use of natural resources during the mining and upgrading of shale. A technology for restoring torn-up land for forest plantings has been introduced, a new technology for leveling and planting mine-waste heaps has been developed and is being introduced, a large set of operations has been carried out for doing away with the rock dump of the former Kukruze mine and for making improvements there, and a system for cleaning up mine and quarry water is being introduced.

The modern level of equipment development will enable the creation of wastefree technologies for mining coal and shale, based upon the integrated use and reduction of losses of mineral resources. However, their introduction is being delayed by departmental isolation and the disproportionate development of various branches of industry in the areas of excavating deposits of useful minerals. At the same time, the draft of the "Main Directions" for developing the country's economy specifies: /"Assimilate deposits of useful minerals in more integrated fashion and do not allow losses thereof during mining and processing."/ And these lines point to the idea of the necessity for /creating under Estonian SSR Gosplan an interagency commission for developing the integrated use of natural resources in the republic./

Questions of equipment and technology for nature-conservation work are being further developed. The main task of the restoration of land that has been torn up by mining now is to raise the quality of the operational stage of recultivation for an increase in biological productivity of the "renewed" land. However, a lack of spare parts and the absence of a modern base for repairing powerful bulldozers, the use of which in concert with walking dragline excavators also determines the quality of recultivation work at shale strip mines, hinders fulfillment of this requirement by the Estonslanets association.

The draft of the "Main Directions" pays much attention to the creation and the technology for the integrated and more complete extraction of useful minerals. It goes without saying that this statement has received the support of mining industry specialists and of scientists. I would like only to add a bit. Where it is said: /"Taking the characteristics of the branches of industry and their production facilities into consideration, create and use progressive systems for organizing the repair of machines and equipment that will provide for an increase in the period of operation between repairs,"/ I would propose to add: /"...and organize the continuous supply of these machines with the necessary spare parts."/

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FUELS

ZHDANOVSKAYA-KAPITALNAYA UNDERGROUND COAL MINE STARTS UP

Kiev PRAVDA UKRAINY in Russian 11 Jan 81 p 1

[Article by N. Ladanovskiy: "They Built It Ahead of Schedule--Let's Master It Ahead of Schedule!"]

> [Text] Miners of the Zhdanovskaya-Kapital'naya Underground Mine, which was turned over for operation at the end of last year, have taken up a work drive under this motto. The mine was built in record time, a year earlier than had been planned. CPSU Central Committee General Secretary and Chairman of the USSR Supreme Soviet Presidium Comrade L. I. Brezhnev warmly and heartily congratulated all the participants in the construction project on a great labor victory. Warm congratulations came from the Ukrainian Communist Party Central Committee and the UkSSR Council of Ministers.
>
> Our correspondent visited the youngest collective of miners in the Donets Coal Basin.

"Our mine is one of the country's biggest and most modern coal enterprises," said Yu. K. Koval', director of the Zhdanovskaya-Kapital'naya mine. "Its design capacity is 3.6 million tons of coal per year, or 2.1 million tons of fuel for the first phase, which has been put into operation. The enterprise is equipped with the latest word in mining science and technology. Hydraulically operated KM-88P longwall mining machines, high-capacity telescoping TL-80 conveyors and sectional trains have been introduced at the first two cutting longwalls.

"In the near future, for the first time in the Donbass [Donets Coal Basin], a crushing and gobbing complex, which will enable rock to be left in the excavated space,will start to operate. Labor productivity per worker will reach 200 tons of coal per month, which is 4-fold that of a number of existing underground mines. In brief, we have received an excellent gift from the minebuilders! Now, as they say, the word is for us, the operators."

...Dmitriy Hebrov, leader of the integrated Komsomol youth brigade, still the only one at the new enterprise, was called upon to lead me to the first northern longwall, where this collective works. The 200-meter face, which is on the 418-meter level, is equipped with highly productive KM-88P longwall mining complexes of increased reliability and two narrow-front cutter-loaders.

A routine cycle had just been completed, and Grigoriy Prosolov's element cleaned up the mine face and lined up in files the hydraulic support sections, which had just now stepped up to the new position. A few light movements of manual switching and the section was raised to full height, reliably supporting the roof with its steel shoulder. Supports cover the mine face vault with close overlapping, guaranteeing complete safety of the coal excavating.

The young miners' collective of Zhdanovskaya-Kapital'naya is doing everything possible to assure that by the end of 1983 the first phase will come up to design capacity. It intends to mine the first 100,000 tons of fuel by the 26th CPSU Congress; 15,000 tons of this will be above the plan. At a meeting that was convened at Zhdanovskaya-Kapital'naya on the occasion of Leonid Il'ich Brezhnev's greeting, the text of which was read by B. V. Kachur, First Secretary of the Donetskaya Oblast Committee of the Communist Party of the Ukraine, the builders committed themselves to turning over the second phase in 1985. And the operators, in their turn, resolved to master its design capacity ahead of time.

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SALVAGING OF CASPIAN'S ABANDONED DRILL PLATFORMS, TRESTLES IS SLOW

Baku VYSHKA in Russian 16 Jan 81 p 2

[Article by K. Varlamov: "Metal in the Sea"]

[Text] I set this headline and then I suddenly recalled the time when, many years ago, an old petroleum engineer peeked into the editorial office. He reeked of the freshness and headiness of the sea. He must have come from a duty shift, from a drill rig in the Caspian. Without further ado, he said anxiously:

"Metal falls to pieces before your very eyes."

It was clear what had disquieted the engineer. And he began to reveal why the salt worried him. I will re-tell it briefly.

Baku, as they used to say figuratively at first, had gone to sea. Tankers filled with oil returned from the sea's expanses. Metal islets grew up like mushrooms on the water's smooth surface, and roads laid on trestles were extended ever farther out. And, it seems, no one noticed how time had passed and islets with extinct fuel gushers gradually had been orphaned.

"This metal could be remelted at Sumgait," the petroleum specialist suggested.

Later I found out that the enthusiast had visited Azneft' [Azerbaijan State Association of the Petroleum Industry] and had offered his services. They sort of agreed with him and approved the useful initiative, but there were not enough time and people to do anything.

That may have been so. The offensive on the Caspian was a new matter then, and much manpower was commandeered. Offshore oil recovery did not take shape smoothly, for there had not been enough experience in the struggle with the elements.

Well, and now that decades have elapsed?

The offshore operation is well arranged. The frontiers of petroleum activities in the deep expanses have grown incomparably over those of the past. The sea's abyss is dotted with more than a thousand individual pile foundations. More than 300 kilometers of steel trestle with roads on it have been laid.

Metal....Metal....Metal....And it would be nice if all of it was doing something. But in some places--here and there--it stands in the water doing nothing. Slowly the steel is burning up here, without any flame.

But is it the metal alone that burns up from rusting? The corrosion process impoverishes the hydrosphere, in which everything alive breathes.

And after so many years, the situation in the Caspian has not been changing for the better for this worthless metal.

An average of up to 1,500 tons of metal is required to lay a kilometer of platform at a sea depth of 10-15 meters. Slightly less is consumed in the erection of a single steel islet for a drill rig. Multiply this data by the figures named above and you will get a total that staggers the imagination: a steel mass of hundreds of thousands of tons rises up before you. And there is this detail: rusting under marine conditions, as specialists have established, can remove a millimeter strip per year from its surface.

According to the best calculations, 249 "abolished" pile foundations are scattered over the offshore jurisdiction of the Kaspmorneftegazprom industrial association. They have been "abolished,"but why the quotation marks? Because not one of them has been taken up by the root, taken ashore and turned over for remelting. Only that which is on the surface has been removed from many of them, that which is easiest and most convenient to get. But the foundation metal--the systems of anchored fastenings and the piles--no one disturbs it, and until now it brings on only melancholic brooding. And aside from the pile islets there are still almost 2 kilometers of trestle that have long been abandoned at the southern shore of Artem Island.

The collective of the scrap-metal section of Kaspneftegazflot [Caspian Oil and Gas Industry Fleet], which is part of the association, gets a little something from this ownerless property. But it actually gets, if one may say so, crumbs, and that with exceeding difficulty. A welder takes a whole day, and sometimes even longer, to cut one pile of a steel foundation. The cement protective layer on the piles makes the work difficult. Moreover, even the association itself does not allocate the islets generously for cutting. Last year Kaspneftegazflot received only one foundation, No 41,in the Bulla Sea area. And it had waited 3 years for it.

Offshore oilfield workers are obligated to turn over to the state more than 40,000 tons of scrap metal each year. The plan has been distributed proportionately among 18 enterprises that make up Kaspmorneftegazprom. And here they do the best they know how. The association has no specialized brigades or sections. Nor is there appropriate technical equipment for undertaking the dismantling of the "abolished" pile foundations. And in that situation, of course, it costs a pretty penny, as they say. The rented crane ship "Kerogly," for example, collects 260 rubles per hour, while scrap metal is turned over at 26 rubles per ton. And so they harvest metal at random. It is not strange, therefore, that carrying out the task is rather difficult at times. It is true, they make both ends meet for the year. But there are months also when it is not so good. And this when there is so large a "reserve" of scrap metal in the sea.

But still the Caspian workers' spirits do not drop, they hope and wait. Once some people argued in a discussion that the powerful herculean "Azerbaijan"--a crane ship with a lift capacity of 2,500 tons--should be brought in.

"It will pull out all these islets, like a dentist pulls rotten teeth," someone suggests.

I do not know how the ship could cope, but here is a more serious idea: to fight the offshore metal with blasting. But there is a snag here also. Back in 1968, with a view to protecting the marine environment, causing any kind of explosion in the sea was prohibited by a government decree.

Nevertheless, some time later scientists made discoveries that precluded the baneful effects of the sounds of explosives on water dwellers. A broad program of scientific research was planned with a view to finding opportunities for safely applying blasting methods in the Caspian. Joining in the program were the Institute of Electric Welding imeni Paton of the UkSSR Academy of Sciences, the Institute of Evolutionary Morphology and Ecology of Animals of the USSR Academy of Sciences, Azerbaijan's Giproneftegaz [State Institute for the Design of Oil and Gas Industry Enterprises] and the Azerbaijan Branch of the Central Scientific-Research Institute of the Sturgeon Industry.

Unfortunately, even now no one can yet name the precise dates when tests of the new method for extracting metal from the sea will start. But time will not wait. The CPSU Central Committee's draft for the 26th CPSU Congress states: /"Provide for more complete use and high-quality preparation of scrap ferrous metals. Draw metal-containing waste into production more widely." [in boldface]/

Because of this, this fact deserves attention in every possible way. A group of scientific workers of the Section of Full-Scale and Experimental Developmental Studies of Offshore Oil Industry Structures of Azerbaijan's Giproneftegaz did work on the use of vibration technology during the erection and dismantling of piles at offshore oilfields. The group's supervisor, Rauf Kasumov, was satisfied with the results:

"The method is splendid in all aspects."

The manager of the Soil Dynamics Laboratory of the Scientific-Research Institute of Foundations and Underground Structures of USSR Gosstroy, Professor Vyacheslav Aleksandrovich Il'ichev, who was present during our conversation, not only confirmed what Rauf Kasumov said but he also added:

"A maximum of 1½-2 hours is required to prepare one pile for extraction from the seabed by the vibration method. There is no requirement here for a ship of great power. Work on dismantling can proceed with the use of a floating crane of ordinary load-lifting capacity."

The essence is clear: it is necessary not to shelve but basically to prove out the vibration method and solve the long-standing problem of dismantling offshore structures that have seen their day and of turning them over as scrap metal.

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BRIEFS

OIL PRODUCTION--An increased number of new scientific and technical achievements are being used to solve problems in oil production in our country. The technical progress in this important branch of industry is facilitated by modern computing techniques, communication and information processing. The production of black gold in the 11th five year plan will increase even more as a result of a sharp increase in the use of improved recovery methods. The scientific resources of the higher educational institutions will also be more effectively used for this purpose. One of the more important tasks facing the petroleum industry is the use of probability and statistical methods in drilling and extraction of oil. This topic was the subject of discussion at the Third All Union Scientific Conference held in Baku by the Ministries of Higher and Intermediate Special Education of the USSR and the Azerbaijan SSR and the M. Azizbekov Institute of Petroleum and Chemistry in Azerbaijan. The conference was attended by representatives of scientific research institutes and special educational institutes of Moscow, Leningrad, Kiev, Tyumen, Baku, Groznyy and other industrial centers associated with oil and gas production. More than a hundred reports were presented and discussed during the three day conference. The purpose of this conference, said A. Kh. Mirzadzhanzade, the chairman of the organizing committee and Academician of the Azerbaijan SSR Academy of Sciences, to the Azerinform correspondent, was an exchange of the more promising ideas and advanced scientific methods for drilling and oil production, with the goal of improving their practical effectiveness in the new five year plan. This was reflected in the resolution adopted by the conference. [Text] [Baku VYSHKA in Russian 5 Dec 80 p 3] 9680

COAL PRODUCTION--The Gosplan of the USSR examined the questions discussed in the article "Seashore Mining" ("Izvestiya" No 201). Problems associated with the development of coal production in the Primorskiy and Khabarovskiy Krays and the Amurskaya Oblast', as well as the inefficient transportation of coal were evaluated by the department for coal, peat and shale industries of the USSR Gosplan with the participation of the USSR Minugleprom, USSR Mingeo and the All Union Scientific Research Institute for Complex Fuel-Energy Problems and Production Coordination "Primorskugol" [Primorskiy Coal]. The following recommendations were made to the USSR Minugleprom: Speed up the development of the project for reconstruction of the "Shkotovskaya" mine in accordance with the technical and economical justification approved by the USSR Gosplan and Gosstroy [State Committee for Construction Affairs], to rebuild it during the 11th five year plan; provide for the development of the large "Luchegorskiy" open-pit mine; accelerate the geological explorations of the Ural deposits; prepare, in 1981-1983, a project estimate for the reconstruction of the "Urgal'skaya" mine; and investigate the possibility and submit proposals for the construction of an open-pit mine, with a capacity of one million tons, at this site. Due to the depletion of the Raychikinskiy coal reserves, the USSR Mingeo is taking measures to accelerate comprehensive prospecting for coal in the Erkovets deposit. The reserves should be ascertained, and the feasibility of immediate production at one of the sites in the Amurskaya Oblast' determined not later than 1983. [Text] [Moscow IZVESTIYA in Russian 18 Dec 80 p 1] 9680

YAMAL NATURAL GAS--Salekhard. More than 450 billion cubic meters of natural gas have been delivered to the national economy since the start of operation of the Yamalo-Nenets Autonomous Okrug fields. Recovery of the North's "blue fuel" has risen 7-fold here during the current five-year plan in comparison with the preceding five-year plan. Urengoy's capacity is increasing rapidly. The daily recovery of gas at Urengoy has doubled this year. The laying here of still another Urengoy-Peregrebnoye-Nizhnyaya Tura-Gornozavodsk-Petrovsk gas arterial started during these precongress days. [Text] [Moscow IZVESTIYA in Russian 22 Nov 80 p 2] 11409

TYUMEN' GEOPHYSICAL EXPLORATION--The geologists of Tyumen' are increasing oil and gas reserves at a rapid pace. A million meters of exploratory hole have been drilled since the start of the year. This goal was reached for the first time in the whole history of the conquest of West Siberia's underground resources. This is almost twice as much as what was done at the start of the five-year plan. New fields of oil and gas have been plotted on Tyumenskaya Oblast's map, and for the first time industrial reserves of gas condensate have been prepared. A reliable raw-materials base will enable further development of northwest Siberia's biggest regional production complex, as called for in the CPSU Central Committee's draft for the 26th party congress. [Text] [Moscow KRASNAYA ZVEZDA in Russian 20 Dec 80 p 1] 11409

UDMURT ASSR OIL DEVELOPMENT--Izhevsk. The Udmurtneft' [Udmurt ASSR Oil-Industry Association] collective is preparing a reliable foundation for growth in the extraction of valuable raw material during the next five-year plan. It has undertaken industrial development of the Krasnogorsk field. Oil obtained from the first wells of the new underground storehouse has started to arrive at the Kiyengopskiy complex for cleaning and preparation as fuel. The Krasnogorsk complex is the first of a group of northern fields of the autonomous republic that will be put into the service of industry during the forthcoming five-year plan. The five-year plan that is being completed was fruitful for Udmurt oilfield workers. They obtained twice as much valuable raw material as during the Ninth Five-Year Plan. The time required to build wells was reduced. [Text] [Moscow KRASNAYA ZVEZDA in Russian 26 Nov 80 p 1] 11409

KUZBASS STRIP MINE PROGRESS--Mezhdurechensk. The collective of one of the largest Kuzbass [Kuznetsk Coal Basin] strip mines--the Krasnogorskiy--coped successfully with 10th Five-Year Plan tasks. About 26 million tons of coal were shipped to customers. By the end of the year the above-plan account for the five-year plan should be about 2 million tons of fuel. The town of Mezhdurechensk, where this and other strip mines are located, observed its 25th birthday half a year ago. And despite its youth, it has become the largest shipper of coal in the Kuzbass. The main stream of fuel comes from the strip mines. The Mezhdurechensk Elevating and Conveying Administration, which exports the coal, also carried out the five-year plan task successfully, having recorded on its account more than 75 million tons of coal sent by rail to customers. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 2 Dec 80 p 2] 11409

EKIBASTUZ SUPPLY OFFICIALS PENALIZED--Deputy Minister of the USSR Coal Industry Ye. Krol' answers SOTSIALISTICHESKAYA INDUSTRIYA. The article, "After a Threatening Order," which was published in SOTSIALISTICHESKAYA INDUSTRIYA of 24 September 1980, has been examined by USSR Minugleprom [Ministry of Coal Industry], and admittedly it is correct. In order to give guidance to the General Director of Ekibastuzugol' [Ekibastuz Coal Production Association] Comrade Kurzhey on the proper procedure for using and storing lumber, it was recommended that he eliminate the deficiencies noted in the article, take measures for strict observance of the Regulations for Storage at Bases and Warehouses, and strengthen management of the work of the central lumber storage. Director for Supply and Transport Comrade Sadykov and Director for Capital Construction Comrade Velichko have been administered severe rebukes for violating the ministry's repeated instructions that prohibited illegal release of material valuables to outside organizations, and, as partial reimbursement of the harm inflicted, it was recommended that each be penalized in the established procedure one-third of the monthly salary for their positions. By order of the Ekibastuzugol' general director, severe penalties were imposed on the Deputy Director for Supply and Transport Comrade Krizhanovskiy, the Chief of the UMTS [Administration for the Supplying of Materials and Equipment] Comrade Shegay, and chief of the central lumber storage Sazonov. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 2 Dec 80 p 2] 11409

FINNS FURNISH DRILLING SHIPS--In accordance with contracts signed with Sudoimport [All-Union Association for the Export, Import and Repair of Ships], the Finnish company Rauma Repola has transferred to the Soviets the first (of three ordered) drilling ships of the "ice" class. The drilling ships of the Rauma Repola company, unlike the drilling platforms used at sea, will enable exploratory drilling to be performed on the continental shelf with great effectiveness. Another Finnish company--Vyartsilya--will deliver to the USSR in coming years a series of river icebreakers of a new type. These ships, which were developed jointly by Finnish and Soviet specialists, can operate on shallow rivers. The building of special ships in Finland on the basis of Soviet orders has now been transformed into an important and promising trend in Finnish shipbuilding. (TASS) [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 3, 1981 p 20] 11409

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